

23rd -25th
AUGUST 2024

SOUVENIR

15th

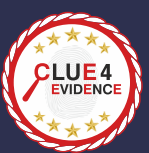
IASR INTERNATIONAL
CONFERENCE-2024

**FORENSIC
SCIENCE**

Venue:
Vallabhbhai Patel Chest Institute, University of Delhi

For more information: www.forensicevents.com | www.sifs.in

In Collaboration with:





Overview

The International Association of Scientists and Researchers (IASR) has emerged as a pioneering organization dedicated to disseminating recent research and studies to avid learners and academics, particularly within the field of forensic science. This journey has been significantly bolstered by the steadfast support of the Sherlock Institute of Forensic Science (SIFS India). The field of forensic science has witnessed notable growth in recent decades, owing to the concerted efforts of talented individuals committed to advancing the discipline. SIFS India's pivotal role in supporting IASR has been instrumental in solidifying the prominence of forensic science in India and globally. Through initiatives such as the IASR International Conferences, which serve as platforms for researchers, academicians, and professionals to exchange ideas and insights, the organization aims to foster continuous learning and facilitate the dissemination of cutting-edge research in various domains of forensics. These include but are not limited to fingerprint analysis, questioned document examination, crime scene investigation, forensic odontology, forensic medicine and toxicology, forensic biology and serology, forensic psychology, cyber and digital forensics, as well as forensic physics and anthropology. By providing such avenues for collaboration and knowledge sharing, IASR and SIFS India are collectively contributing to the advancement and enrichment of forensic science on a global scale, thereby aiding in the effective application of forensic techniques in solving crimes and administering justice.

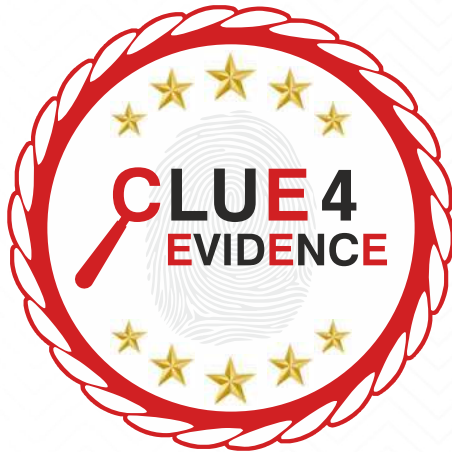


SIFS India

The Sherlock Institute of Forensic Science (SIFS) India was set up in 2006 with the mission to make forensic education available to all and with a vision to make India a crime-free place to live by creating a skilled workforce of forensic experts to assist law enforcement agencies and the judiciary in bringing justice to the table within time.

SIFS India offers comprehensive industry-specific and job-ready online and offline courses, trainings, internships, workshops, and research-based projects in the diverse forensic science domains, like cyber law, cyber and digital forensics, fingerprint verification, questioned document examination, and handwriting analysis, to name a few.

It has been a frontrunner in the field of forensic science. It has been conducting various events to maximize the reach of Knowledge of forensic science across the globe. It organizes various Conferences, Seminars and Workshops with the goal of sharing recent advancements and research happening around the globe with students and professionals to boost their knowledge and morale. Forensic science has been growing significantly over the past few decades; the essential demand for progress has been met with bright young minds putting their extensive efforts into advancements in the field. SIFS India, along with other prominent organizations, have been substantial support pillars in establishing the mark of forensics in India and worldwide. The motive of constant learning and sharing recent studies and advancements has been met constantly with their continuous efforts.



Clue4 Evidence

Evidence being one of the most wanted element in any legal trials/enquiries, failure in presenting appropriate authenticated evidence at suitable stage of the trial has been always a challenge in legal practice today. When criminals are acquitted while everyone blames the legal system, we had a different way to look at the situation and contribute our skills to the society and to be the reason for getting Justice to the victim.

Clue4 Evidence Forensic Investigations Private Limited (Clue4 Evidence Forensic Lab) is a dedicated corporate entity and has been recognized as the competent Forensic Laboratory in the field of testing and investigations. Incorporated in the year 2009, Clue4 Evidence Forensic Lab is now the most preferred Forensic partner for various high profile cases which are being investigated by Police and special investigation agencies across the Country. Having the corporate office at Bangalore, Clue4 Evidence Forensic Lab has been efficient in delivering various Forensic services to several clients across India and across the globe. The company has also been successful to offer Forensics as a tool to prevent the frauds and not just to investigate and has earned the clients from various sectors including banking, finance, insurance, housing development corporations, law enforcement (police and courts), educational institutions, corporate and individuals across the globe.

In the past several years of experience, the company has contributed to educate the people through numerous Workshops, Seminars and Certifications. The reports submitted by Clue4 Evidence has been a key evidence in passing judgement in several cases. Today, Clue4 Evidence Forensic Lab is known for its credibility and efficiency and as an organisation, we strive to offer the forensic needs of this society with the same spirit.

Knowledge Partners



University of Philippines
Manila



Holy Angel University
Philippines



Philippine National
Police



Atma Ram Sanatan Dharma
College, University of Delhi



University of Baguio
Philippines



PSGR Krishnammal College
for Women, Coimbatore



GARDEN CITY
UNIVERSITY
EMPHASIS ON LIFE
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Federal University
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Nigeria



“येथे बहलांचे हित”
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Shankarrao Chavan Law
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Saveetha Dental College
SIMATS, Chennai



Srinivasan College
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Perambalur, Tamil Nadu



Jaipur National
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Sikar, Raj.



Lyceum of the Philippines
University, Philippines



Tarlac State University
Philippines



Guru Ghasidas University
Bilaspur



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RNT University
Bhopal



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Aditya Degree & PG College
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Kalinga University
Naya Raipur



Bharti Vishwavidyalaya
Durg, Chhattisgarh



JECRC University
Jaipur, Raj.



Institute for Criminalistics,
Criminology and Security
Republic of Kosovo



SGT University
Gurugram, Haryana



SHUATS
Prayagraj, U.P.



Chandigarh University
Mohali, Punjab



Lovely Professional
University, Punjab



AFOHR



Indrashil University
Gujarat



Parul University
Gujarat



Bangladesh Institute
of Forensic Psychology
& Graphology



Integral Institute of
Allied Health Sciences and
Research Integral University



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Polytechnic University



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UNIVERSITY
Centurion University
Andhra Pradesh



Tomas Claudio Colleges
Rizal, Philippines



SANDIP
UNIVERSITY
Sandip University
Nashik



ICFAI University
Jaipur

Organizing Body



Ranjeet Kr. Singh

Organizing Chairman



Phaneendar BN

Co-Organizing Chairman



Vijay Rustagi

Organising Secretary



**Prof (Dr) Ma. Teresa G.
De Guzman**

Professor, University of the Philippines, Manila
Executive Director,
Interdisciplinary Research & Development



Dr. Jose I. Dela Rama Jr.

Professor and Dean
Tarlac State University School of Law
Phillipines



Prof. Emilio Nuzzolese

Founder President, AFOHR
Professor, University of Turin, Italy



Nino Kabiling

Dean, College of Criminal Justice
Education & Forensics,
Holy Angel University, Philippines



**Dr. Charesma Grace K.
Lud-Ayen**

Dean,
University of Baguio, Philippines

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Priyanka Parihar



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Dhruv Dutt Sharma



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Christy Susan Thomson



Harpreet Singh



Neha Sharma



Ridhi Khandelwal



Laishram
Roscline Devi



Manju



Khyati Rao



Rupal Joshi



Priyanka Verma



Jaya Pandey



Sonali Priya



Beenu Chahar



Chongtham
Roshankumar Singh



Naveen P. T.



Shubhangi Bisht



Vandana Rajput



Ayushi Arora



Priya Kumari



Anjali



Mahesh Jadhao



Sameeksha Dubey



Muskan Makhija



Shristi Tyagi



Jiya Lal



Malavika Venu



Mankina Bavana
Satya Anveshita



Chetan Mahajan



Gopal Mishra



Monalisa Mohanty

Our Past Conferences



Message from the **SPEAKERS**



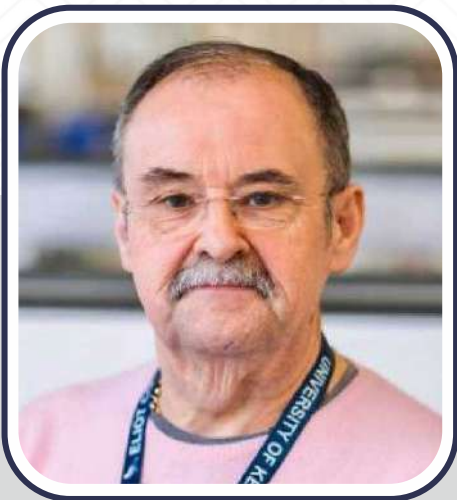


Dr. Henry C. Lee

Professor & Director,
University of New Haven,
Connecticut

Greeting Message

I am pleased and honored to be asked as the keynote speaker for the 15th IASR International Conference on Forensic Science 2024. Over the years, IASR has not only provided a valuable platform for forensic scientists around the world together to exchange ideas and information, but also offers an opportunity for professional and public to learn the science of Forensic.



Prof. Robert Green OBE

Fellow & Vice President
Chartered Society of Forensic Sciences
Division of Natural Sciences
University of Kent

Greeting Message

It's a real privilege and honour to be able to speak with you at your conference. Many of you will know how forensic science plays a crucial role in uncovering truth, delivering justice, and bringing closure in many ways. It is clear that the government of India places significant emphasis on forensic science and recognises its importance in the delivery of justice. And so, the high demand for forensic science services will continue to challenge and engage all individuals working towards ensuring justice is served. The commitment shown by India, to leverage forensic science to uphold the rule of law, provide closure to victims and continue to play a critical role in the justice system is a source of national pride.



Prof (Dr) Ma. Teresa G. De Guzman

Professor,
University of the Philippines, Manila
Executive Director,
Interdisciplinary Research & Development

Greeting Message

Respected coordinators of the 15th IASR International Conference on Forensic Science, esteemed individuals, I would like to extend my heartfelt congratulations and gratitude for the invitation to participate as one of the forensic speakers at the esteemed conference at the Vallabhbhai Patel Chest Institute, University of Delhi, from August 23rd to 25th, 2024. This conference provides a unique opportunity to immerse ourselves in forensics, learn from experts, explore advancements, and engage in meaningful discussions. Building relationships with fellow enthusiasts and specialists from IASR is incredibly valuable. The conference aims to foster a dynamic atmosphere for education and idea exchange, enhancing our society. I am excited about our continued collaboration in forensic science. Furthermore, this event will inspire the next generation of students and professionals. Forensic science is essential for addressing today's societal challenges, promoting justice, and protecting human rights, animal rights, and cultural heritage. Forensic experts are vital in combating cybercrime, addressing the opioid crisis, investigating environmental crimes, and preventing terrorism. They also play a crucial role in conserving cultural assets, identifying disaster victims, and providing closure for families. Nurturing new forensic scientists can help build a society based on respect, equity, and unity. I look forward to meeting you all in August!



Prof. Ivana Cukovic-Bagic

Professor,
University of Zagreb, Croatia

Greeting Message

Child abuse and neglect issue represents an unavoidable component of every education process in forensic dentistry. Unfortunately, it is a general public health problem. It requires a multidisciplinary approach and collaboration of forensic odontologists, psychologists, pediatricians, psychiatrists, social workers, but also dentists and specialists in pediatric and preventive dentistry. There is no doubt that early identification of an abused and neglected child is our task of the utmost importance. At the same time it is a moral and legal obligation of all professionals who should work for the child's benefit. Literature related to the knowledge of dentists and other medical professionals on this issue, speaks in favor of their lack of training in recognizing the symptoms of abuse, as well as ignorance of the rules of treatment after suspected abuse. Thanking and congratulating the Organizers of this Congress, I am honored to share the highlights on child abuse and neglect in order to encourage the colleagues to consider our role for better future of children!



Dr. Jay T. Dalet

Associate Professor,
Department of Biology,
College of Arts and Sciences,
University of the Philippines, Manila

Greeting Message

Greetings esteemed colleagues,

I am delighted to welcome you to this conference, a valuable opportunity for us to come together and reflect on the pivotal role that forensic science plays in the pursuit of justice. The field of forensic sciences encompasses a diverse range of scientific disciplines, presenting us with new challenges and complexities to navigate. The meticulous analysis of evidence, particularly biological evidence, is crucial in furnishing impartial insights into legal matters and aiding in the resolution of intricate cases. It is highly important that we continue to exchange our latest knowledge and insights across our respective disciplines. By upholding scientific rigor and pooling our collective wisdom, we can drive progress, surmount obstacles, and advocate for enhancements that will contribute to a more ethical and equitable justice system. There is always room for advancement and refinement in our practices.

I eagerly anticipate engaging in enlightening discussions and forging meaningful partnerships during this conference. May each of us achieve resounding success in our shared pursuit of justice.

Thank you sincerely for your participation and dedication to this noble cause.



Prof. Jeff Cheng-Lung Lee Ph.D

Professor,
Department of Criminal Investigation,
Taiwan Police College

Greeting Message

As a forensic expert from Taiwan, I am delighted to extend my warmest congratulations on the occasion of the 15th IASR International Conference on Forensic Science. This is a highly significant academic event that brings together forensic experts from around the world to collectively explore and share the latest advancements in forensic technology and research.

I sincerely hope that this conference will establish a high-level international exchange platform for the attendees, fostering learning and collaboration among forensic experts from various countries, and promoting the healthy development of the global forensic science community. I wish the conference great success and the achievement of fruitful outcomes.

This conference undoubtedly serves as an invaluable forum for the exchange of ideas, the discussion of cutting-edge techniques, and the collective advancement of the forensic science field. As a forensic professional, I am confident that this gathering will contribute significantly to the reliability and accuracy of forensic practices, driving the continuous progress of forensic science theory and application.

I extend my heartfelt congratulations on the convening of this prestigious conference, and I wish all the attendees a productive and enriching experience. May this event serve as a catalyst for the strengthening of international cooperation and the further development of the global forensic science community.



Dr. Niño M. Kabiling, RCrim.

Dean, College of Criminal Justice
Education & Forensics,
Holy Angel University, Philippines

Greeting Message

It is with great honor and enthusiasm that we welcome you to the 15th IASR International Conference on Forensic Science. As we gather here, united by a shared dedication in upholding the principles of scientific inquiry, we embark on a journey of knowledge exchange, collaboration, and innovation.

This conference serves as a testament to the ever-evolving landscape of forensic science, showcasing cutting-edge research, groundbreaking technologies, and novel approaches that are shaping the future of our field.

May this conference ignite our collective passion, foster meaningful connections, and inspire us to push the boundaries of what is possible in the pursuit of justice. Let us embrace this opportunity to learn, grow, and collaborate, as we continue to advance the field of forensic science and make a lasting impact on society.

Thank you for participating in the 15th IASR International Conference on Forensic Science – a platform for discovery, innovation, and the unwavering pursuit of truth and justice.



PCPT Jeric C. Manalili, Rpsy, Rpm

Psychologist Officer
Philippine National Police
Philippines

Greeting Message

A blessed day to all of you (आप सभी को एक धन्य दिन) welcome to the 15th International Association of Scientists and Researchers' International Conference on Forensic Science held at the University of Delhi, New Delhi, India. This 3-day program is a jam-packed experience for all of you as you personally hear the expertise and real-life experiences of experts coming from the different subfields of Forensic science. Combining the art and science of cybersecurity, chemistry, law, biology, criminology, anthropology, psychology, and many other fields of study toward a single goal- to administer justice makes it unique and fascinating. As you embark on your journey into this multidisciplinary field, always remember that there is no greater service than the service to those who need it the most, and these are people who need justice. One way to do this is to reconcile the different sub-fields of forensic science. Let's enjoy this conference, learn from one another, and make a lasting difference. As Jack Canfield puts it, “when your dreams include service to others- accomplishing something that contributes to others – it also accelerates the accomplishment of that goal. People want to be part of something that contributes and makes a difference”.



Dr. Kimberly Anne Plomp

Associate Professor
Head of the Human Osteoarchaeology,
Palaeopathology & Evolution (HOPE) Lab.
School of Archaeology,
University of the Philippines, Diliman

Greeting Message

Dear esteemed colleagues, students, and friends, I would first like to thank you for inviting me to participate in this conference. It is an honour to be included among my fellow speakers and be given the opportunity to discuss forensic anthropology with you. I would also like to thank you all, especially the students, for showing impressive dedication and enthusiasm for developing forensic science in India and other parts of Asia. It is hoped that future generations such as yourself will continue to learn, create, and implement forensic science techniques to help people and the law during times of extreme hardship and pain. This is just the beginning, so please keep moving forward as we work towards a robust and bright future of forensic science in Asia.



Dr. Jose Ignacio Dela Rama Jr.

Professor and Dean
Tarlac State University School of Law
Phillipines

Greeting Message

It is with great pride and honor to be invited at the 15th IASR International Conference on Forensic Science here at New Delhi, India. I became engrossed with Forensic Science because as a lawyer, I see the need to have it introduced in court proceedings, especially in the appreciation of evidence. In my more than thirty (30) years of practice as a lawyer, I noticed that courts rely mostly on testimonial evidence. They are unreliable most of the time. However, the use of Forensic is scientific and since it is science based, it is more reliable. I salute the organizer of this seminar and the Republic of the Philippines is very receptive in this kind of forum towards the administration of Justice.



Dr. Rajesh Verma

Retd. Director of Forensic Lab.
Shimla, Himachal Pradesh

Greeting Message

Dear Esteemed Colleagues and Participants,

It is with great enthusiasm that I welcome you to our Forensic Science Conference. As we gather here, we embark on a journey of discovery, collaboration, and innovation that is vital to the advancement of our field.

Forensic science, with its profound impact on the pursuit of justice, continues to evolve at a remarkable pace. This conference serves as a platform for sharing groundbreaking research, discussing emerging trends, and fostering professional connections that will drive us forward.

Our shared passion for uncovering the truth and our commitment to the highest standards of scientific integrity are what unite us here today. I am confident that the discussions, presentations, and interactions over the course of this conference will inspire new ideas and lead to meaningful advancements in our work.

Let us take full advantage of this opportunity to learn from each other, challenge our thinking, and collectively contribute to the future of forensic science.

Thank you for being a part of this important event, and I wish you all a productive and enriching experience.



Dr. Evi Untoro

Lecturer and Head,
Dept. of Forensic MedicoLegal & Sciences,
University of Trisakti, Indonesia

Greeting Message

To all my Teachers, Mentors, Colleagues, Students and Friends in Forensic Field. It's been 5 years since our offline meeting at Lucknow, India. Even though we are isolated by pandemic of covid-19, we still meet up online. Very grateful and happy to be invited again to join 15th IASR 2024 by offline mode. Here, we will share our knowledge and experiences in our daily works and building the great networks between new students and colleagues from all over the world. My talk will be on forensic pathology which I concluded from my experiences in conferences meeting globally since 2020.

Regards

Dr. Evi Untoro



Prof. Emilio Nuzzolese

Founder President, AFOHR
Professor,
University of Turin, Italy

Greeting Message

Dear Esteemed Attendees,

I am truly honored to be one of the guest speakers at this esteemed conference, which serves as a significant platform that brings together distinguished professionals, researchers, and experts from around the world, all united by our shared passion for advancing the field of forensic sciences. Throughout the conference, we will explore the latest advancements, breakthroughs, and innovative approaches that have revolutionized forensic investigations. In an era of unprecedented technological evolution, it is paramount that we remain at the vanguard, adapting and harnessing these advancements to enhance our forensic practices and contribute to the pursuit of justice. Engaging keynote speeches, enlightening panel sessions, and stimulating workshops await you, offering invaluable opportunities for learning, networking, and exchange of knowledge. Recognizing the tremendous efforts invested by the International Association of Scientists and Researchers in organizing this event, I am confident that this conference will be a source of inspiration, knowledge, and lasting professional connections. Wishing you an enriching and memorable conference.



Dr. Danilo Magtanong

Retd. Associate Professor,
Prosthodontics and the Dean
College of Dentistry,
University of the Philippines Manila

Greeting Message

Forensic Odontology is all about utilization and employment of the principles and expertise in Dental Sciences and Technology, in helping find answers to some legal questions, in the interest of law and justice. The evidences emanating from this may find usefulness in the solution of legal problems.



Dr. G. K. Goswami IPS

Additional Director, General of Police
Founder Director, UPSIFS Lucknow

Greeting Message

The efforts by the IASR to promote forensic science, especially in the context of the new criminal laws in India, deserve commendation. The insights shared by various global experts will strengthen the foundational knowledge and understanding of global best practices in the diverse fields of forensic services. Translating expert opinions into credible evidence is crucial for judicial proceedings. I eagerly anticipate the integration of legal knowledge with forensic science to further the cause of forensic justice.

Meet Our SPEAKERS





Dr. Henry C. Lee

Professor & Director,
University of New Haven,
Connecticut

Profile

Dr. Henry C. Lee is one of the world's foremost forensic scientists. His work has made him a landmark in modern-day criminal investigations. He has worked with law enforcement agencies in helping to solve more than 8000 cases. His testimony figured prominently in the O.J. Simpson, Jason Williams, Peterson, and Kennedy Smith Trials; and in convictions of the "Woodchipper" murderer as well as thousands of other murder cases. He has assisted local and state police in their investigations of other famous crimes, such as the murder of Jon Benet Ramsey in Boulder, Colorado, the 1993 suicide of White House Counsel Vincent Foster, the death of Chandra Levy, the kidnapping of Elizabeth Smart, and the reinvestigation of the Kennedy assassination. He was a consultant for more than 800 law enforcement agencies. He is currently the director of Forensic Research and Training Center and Distinguished Professor in Forensic Science of the University of New Haven. He was the Chief Emeritus for the Connecticut State Police and was the Commissioner of Public Safety for the State of Connecticut and also has served as the state's Chief Criminalist. In 1975, he joined the University of New Haven, where he created the school's Forensic Sciences program. He has also taught as a professor at more than a dozen universities, law schools, and medical schools. He has authored hundreds of articles in professional journals and has co-authored more than 40 books. He has appeared in many TV shows and movies. He has been the recipient of numerous medals and awards, including the 1996 Medal of Justice from the Justice Foundation, and the 1998 Lifetime Achievement Award from the Science and Engineer Association. He has also been the recipient of the Distinguished Criminalist Award from the American Academy of Forensic Sciences (AAFS); the J. Donero Award from the International Association of Identification and in 1992 was elected a distinguished Fellow of the AAFS. He has also received the Lifetime Achievement Award from the American College of Forensic Examiners (ACFE) in 2000 and many more. He is a recipient of 30 Honorary degrees.



Hon. Susan A Yap

Governor
Provincial Govt. of Tarlac

Profile

Governor Susan A. Yap came from a family of public servants who have dedicated their many years to the common objective of uplifting the lives of their constituents. Known for her distinguished career in public service and inspired by the passion to serve by her late father, Jose A. Yap, Governor Susan, as she is popularly known, has long sought and aimed to contribute to the development of Tarlac, its people, and the society at large. Motivated to establish a province that has a progressive, sustainable and inclusive economy, she seeks to empower the Tarlaquenos through livelihood programs that provide alternative sources of income to the traditional agricultural-based. Under her leadership, the provincial Government of Tarlac became a consistent awardee of the Seal of Good Local Governance since 2013. She has won awards such as the Best Public Employment Service Office for the last three years, the National Gawad Kalasag Award for the exemplary performance of the Tarlac Provincial Disaster Risk Reduction Management Council's Disaster Assistance and Rescue Team/Emergency Medical Services (DART/EMS); and the National Kabalikat Award for the province's contribution in advancing Technical Vocational Education and Training.



Prof. (Dr.) Robert Green OBE

Fellow & Vice President
Chartered Society of Forensic Sciences
Division of Natural Sciences
University of Kent

Profile

Prof. Robert Green is currently a Reader in Forensic Science and the Director of Student Engagement within the School of Physical Sciences at the University of Kent, UK, as well as teaching extensively on the forensic science program within the school. Before joining the University, he worked in Research and Service Development at the Forensic Science Service and later led the Science and Technology Unit within the Police Standards Unit at the UK Home Office. Most notably he was responsible for initiating the Home Office work on performance improvements, using computer simulation to ensure the most effective business processes are adopted across the forensic science services. He is well known for developing and leading the national program of cold case rape investigation – Operation Advance as well as being a national and international speaker on the development of DNA and other biometric databases. Throughout his career, he has managed many national and international projects namely, CCTV, street crime and homicide reduction initiatives to ensure the most effective use of technology to combat crime. He was made an OBE in the Queen's Birthday Honours list of 2008 for his services to forensic science. Over 34 years he has led a large number of consultancies both in the UK and abroad, dealing with science, technology and how to maximise business processes to get the best from the investment in science.



Prof. (Dr.) Emilio Nuzzolese

Founder President,
Association Forensic Odontology for
Human Rights
Associate Professor
University of Turin, Italy

Profile

Prof. Emilio Nuzzolese is a forensic odontologist, currently serving as an Associate Professor in Legal Medicine at the University of Turin (Italy) and Head of the Human Identification Laboratory at, the Medico-legal Institute of Turin. He also serves as an Honorary Judge at Juvenile Courts. He graduated in dentistry from the University of Bari (Italy) in 1994. He holds post-graduate degrees in Legal Medicine, Forensic Sciences, and Forensic Odontology and a Research Doctorate (PhD) in Analytic Morphometry. He served as an Expert witness in the Civil and Penal Court for dental disputes & professional liability and as an Expert before the International Penal Court. He has associative involvements, which include participating as an odontologist in the INTERPOL DVI Forensic Odontology Sub-Working Group since 2010. He is also President and Founder of the Civil Protection Association Dental Team, DVI Europe. He is a co-founder of Forensic Odontology for Human Rights. He is a Fellow of the Odontology Section of the American Academy of Forensic Sciences, since 2011. He has presented over 100 papers in national and international forensic science meetings and journals and has been invited as a speaker at several congresses in Italy and abroad (Canada, Indonesia, India, Hungary, Nepal, Romania, USA, UK), among which the forensic dentistry session of the 2006 FDI World Dental Congress in Shenzhen (Republic of China).



Prof (Dr) Ma. Teresa G. De Guzman

Professor,
University of the Philippines, Manila
Executive Director,
Interdisciplinary Research & Development

Profile

Prof. (Dr.) Ma. Teresa G. De Guzman holds the position of Professor at the Department of Behavioural Sciences in the College of Arts and Sciences at the University of the Philippines Manila. She is a professional applied anthropologist from the University of the Philippines with a Ph.D. in Anthropology, specializing in Cultural Anthropology. She has conducted considerable research and collaborated closely with many Ethnolinguistic communities in the Philippines, focusing on the Aeta, Mangyan, and Manobo groups. She has accumulated 25 years of academic experience, further enhanced by 20 years of practical work in the field. Her research and professional endeavors focus on studying Indigenous communities, Indigenous Knowledge (IK), Cultural Heritage Impact Assessment, Health and Social Impact Assessment, Disaster Risk Management, and related areas. The individual in question has held several notable positions, including serving as the chair of the Department of Behavioural Sciences for six years, acting as the convenor of the Manila studies program, chairing Panel 5 of the Ethics Committee, and being a member of the screening committee for the PhD by Research program. Additionally, she is the Executive Director of the Interdisciplinary Research and Development (IRD) consultancy organization.



Prof. Ivana Cukovic-Bagic

Professor,
University of Zagreb, Croatia

Profile

Professor Ivana Cukovic-Bagic, DMD, MS, PhD, specialist in paediatric and preventive dentistry. For the past 32 years, she has been involved in research, teaching and specialist healthcare at the University of Zagreb, School of Dental Medicine, Department of Paediatric and Preventive Dentistry, where she is a Full Professor and Specialist in Paediatric and Preventive Dentistry. Her PhD is made on craniofacial anthropometry in collaboration with Professor Leslie G. Farkas (Hospital for Sick Children, University of Toronto), the “father” of modern craniofacial anthropometry. She was a Scientific Advisor and Principal Investigator/Collaborator in many grants, connected to her interests and competences. She is teaching at undergraduate, graduate, and postgraduate courses covering a wide range of topics in children and adolescents, such as: age estimation, child abuse and neglect, carious and non-carious lesions, (medically) compromised patients. After years of obtaining knowledge from renowned world experts in the field of forensic odontology, she made efforts to design and introduce a course (in 2007) on “Child abuse and (dental) neglect”, which improved study program of Dental Medicine at the University of Zagreb, Croatia. Professor Cukovic-Bagic is author of National Strategy for Oral Health Prevention and Protection, Ministry of Health, Republic of Croatia. She has published more than 80 peer-reviewed in extenso articles as well as she had participating in creating university (hand)books as an author/editor/reviewer. Also, she had numerous lectures/presentations on mainly international congresses/meetings. She is a member of many national and international societies, and is qualified as an expert witness for the field of dental medicine. Since 2014 to 2022, she has been holding the position of Vice Rector for Students, Study Programmes and Quality Management at the University of Zagreb, Croatia, and since 2021 to 2023 the position of Appointed Rector of newly founded University of Defence and Security, Republic of Croatia.



Dr. Jose I. Dela Rama Jr.

Professor and Dean
Tarlac State University School of Law
Phillipines

Profile

Dean Jose I. dela Rama, Jr. is currently the Dean of Tarlac State University, School of Law. He obtained his Doctor of Civil Law and Master of Laws at the University of Santo Tomas; Post Doctorate Degree on Strategic Planning at the Philippine Christian University. He was the former Integrated Bar of the Philippines Governor for Central Luzon Region, Outstanding Commissioner, 2012 and 2023 and Commissioner of the Commission on Bar Discipline. He has co-authored three (3) books entitled “Problem Areas in Legal Ethics”, “Problem Areas in Positive Identification, libi and the Emerging Role of Forensic Science in the Appreciation of Evidence” and “Property and Land Laws”. Professor of PLM Graduate School of Law, Philippine Polytechnic University (PUP) and San Sebastian Recoletos. An awardee of the Golden Tamaraw Award in the Academe and St. Antoninus Award from his Alma Mater Far Eastern University and UST Graduate School of Law, respectively. A law practitioner, MCLE Speaker, Professor and a researcher. Recipient of Doctor of Educational Leadership and Management Honoris Causa by St. James University, Pennsylvania, USA. Doctor of Humanities Honoris Causa, Instituto Educado Para A Paz, Brazil.



Dr. Danilo Magtanong

Retd. Associate Professor
Prosthodontics and the Dean
College of Dentistry
University of the Philippines Manila

Profile

Dr. Danilo L. Magtanong is a retired (as of October 7, 2022) Associate Professor in Prosthodontics and the Dean of the College of Dentistry, University of the Philippines Manila, from July 2016 -to July 2022. He have been in the academe for 36 years. He finished his Doctor of Dental Medicine (DDM) at the same University in 1986 and was recruited as a member of the faculty at the Section of Prosthodontics immediately after graduation. He took-up and completed his Masters in Health Profession Education (MHPed) at the National Teachers Training Center for the Health Professions (NTTCHP) also in UP Manila, in 2004. In 2010, he took up and finished a dental implant training program in Seoul, South Korea. He is also immediate past President of the Philippine Prosthodontic Society (PPS) serving as President in 2019 -2021, and also a Fellow of the same specialty society (FPPS) accredited by the Professional Regulation Commission (PRC) of the Philippines. He is currently a member of the Philippine Board of Prosthodontics (PBOP). He is a member of the International Association of Forensic Science and a lifetime member of the Asian Association of Prosthodontics (AAP). Throughout his teaching career, he was able to do numerous scholarly and creative works in Prosthodontics, Health Professions Education and Forensic Odontology, for training and education of Dentistry students and, as well as, for dental practitioners, including researches and manuals which were published locally and internationally. He acted as guest lecturer, speaker, facilitator, and/or resource person to over a hundred seminars and conventions in dentistry & education, organized by governmental and/or non-governmental groups. He lectures and acted as consultant on topics such as Prosthodontics, Forensic Odontology and Health Professions Education. He is also frequently invited for public awareness programs and for a regarding dentures and denture-wearing, including radio and television interviews in the country.



Dr. Evi Untoro

Lecturer and Head,
Dept. of Forensic MedicoLegal & Sciences,
University of Trisakti, Indonesia

Profile

Dr. Evi Untoro is a Forensic Pathologist, medico-legal consultant, and Forensic Medicine Specialist. She is currently serving as Head of the Department, Forensic and Medico Legal, Faculty of Medicine, Universitas Trisakti, Jakarta- INDONESIA. She is a member of the Indonesian National DVI Team (since 2007), the Indonesian Banten Province DVI Team (since 2016), International Relation Division in Indonesian Forensic Pathology Association(2022-2025), The Advisory Team in Forensic Pathology, President Elect 2023-2025 in AFOHR, Subgroup in Forensic Pathology and Forensic Anthropology in DVI INTERPOL since 2017, etc. She has been working in some Private and Government Hospitals for Forensic Cases (clinical and Pathology) and has also been called upon as a witness expert in some Forensic Cases around Asia and the Pacific. She has written some articles and publications, as well as forensic books and research in the Forensic DNA Database of Indonesian and Asian (publications on Elsevier 2009 on the Allele Frequency of CODIS 13 of the Indonesian DNA Database). She has 5 years of experience (2005–2010) in the Identification of the Japanese Soldier's Human Remains of World War II victims of MIA (Missing in Action) in Papua and Makassar, Indonesia, with the permission and invitation of the Japanese Government and Japanese Embassy in Indonesia, which added more knowledge and skills to her performance in forensic work. She was involved in many Disasters in Indonesia (Natural and unnatural) and took joint training on DVI in several other countries using the DVI INTERPOL Guide as an International standard.



Prof. Jeff Cheng-Lung Lee Ph.D

Professor,
Department of Criminal Investigation,
Taiwan Police College

Profile

Professor Dr. Jeff Cheng-Lung Lee holds a Ph.D. in Biomedical Engineering and Environmental Sciences from the National Tsing Hua University. He also possesses a Bachelor and Master degree in first-generation Forensic Science from the Central Police University in Taiwan, and has accumulated 18 years of extensive experience working in the Forensic Science department of the Hsin-Chu City Police Bureau, where he served as the Head of Forensic Science. During this time, his work focused on Crime Scene Investigation and the development of innovative forensic science techniques. Over the course of his distinguished career, he has diligently investigated hundreds of crime scenes and successfully solved numerous challenging cases. In addition to his domestic experience, Dr. Lee has also held the position of research scholar at the University of New Haven in the United States and visiting scientist at the Connecticut Department of Public Safety, Division of Scientific Services. He is currently an esteemed Institute Scholar of the Henry C. Lee Institution of Forensic Sciences at the University of New Haven. Furthermore, he was invited to Qatar Police College, where he demonstrated his expertise by teaching and planning the development of a state-of-the-art crime scene center for 3 years. Presently, Professor Dr. Jeff Cheng-Lung Lee is a highly respected faculty member at the National Tsing Hua University and Taiwan Police College. Alongside his work in crime scene investigation, he has made invaluable contributions to forensic science education. Over the years, he has delivered hundreds of captivating lectures at various universities, high schools, and corporate entities, effectively promoting the significance of scientific evidence and its application in the field.



Dr. Nolasco R. Saporne, R.Crim.

Professor/Faculty Member
Holy Angel University, Philippines
Training Director, Security Consultant
Certified Security Professional
Philippine Society for Industrial Security
International

Profile

Dr. Nolasco R. Saporne, affectionately referred to by his peers as Doc Noli, holds the esteemed position of Professor or Faculty Member within the esteemed Holy Angel University, where he contributes his expertise to the esteemed College of Criminal Justice Education and Forensics. With a passion for imparting knowledge and shaping the next generation of security professionals, he plays a pivotal role in nurturing the academic and professional growth of students pursuing careers in the fields of criminal justice and forensics. He is Licensed by PNP SOSIA as Training Director, Security Consultant and Certified Security Professional (CSP), Philippine Society for Industrial Security International In addition to his academic pursuits, he exemplifies his commitment to the field of security through his role as a Senior Manager II within the Security Group at the Philippine Amusement and Gaming Corporation (PAGCOR). In this capacity, he leverages his extensive experience and expertise to oversee and strategize security operations, ensuring the safety and integrity of PAGCOR establishments and patrons. His multifaceted contributions to both academia and industry underscore his dedication to advancing the realms of education and security, making him a respected figure within his field.



Amir Liberman

CEO, Inventor, Owner
Nemesysco Ltd., Israel

Profile

Amir Liberman is a worldwide leading researcher in the field of human voice analysis, and the first to identify the 3 basic sensations in the human voice: Excitement (positive sensation), Stress (negative sensation) and uncertainty (cognitive stress). He began his voice analysis research in 1997, in response to a terror attack that took the lives of 3 young mothers in Israel. His original intention was to build the “ultimate lie detector” based on speech analysis and other more common techniques of veracity assessment, but quickly changed the scope of his research to explore unique properties of the voice he identified in his preliminary test cases. His first voice related patent was published at 1998, summarizing a research of 2 years, leading the way to the development of the first ever commercial computerized emotion detector. His more recent discoveries and additional novel vocal parameters were published in his second voice analysis patent from 1999, identifying “Concentration”, “Anticipation” and “Arousal” (Also known as the “Love Detector” patent). Being a self-educated researcher, his methods of research are unique and unfamiliar to the world of traditional phonetics, as most of his research is done in real-life settings and not in a mocked laboratory atmosphere. He formed Nemesysco, Ltd. in April of 2000, to manage all of his IP patents and development projects. Since then, he has invested all of his efforts and resources in perfecting and fine-tuning LVA technology and its applications for homeland security needs, fraud prevention solutions, call center utilities and CRM appliances.



Dr. Irene D. Valones **DCL, DPA**

Court Attorney,
Supreme Court of the Philippines
Subject Matter Expert on Forensics
Cybercrime, and Cybersecurity

Profile

She is a Court Attorney in the Supreme Court of the Philippines and a Subject Matter Expert on Forensics, Cybercrime, and Cybersecurity. She obtained her Doctor of Civil Law (Cum Laude) at UST, Doctor of Public Administration (Highest Distinction) at PLM, Master in Public Management (Dean's Lister) at the University of the Philippines, and Master of Law (LLM) in Transnational Law (With Merit) at King's College London, United Kingdom as a Chevening Scholar. She teaches in various law schools and the Graduate School of Law in the Philippines and is a Miliated with various organizations.



Dr. Jay T. Dalet

Associate Professor, Dept. of Biology,
College of Arts and Sciences,
University of the Philippines, Manila

Profile

Dr. Jay T. Dalet is an Associate Professor and Former Chair of the Department of Biology in College of Arts and Sciences in University of the Philippines Manila (UP Manila). He is a Bachelor of Science in Biology in UP Manila. He obtained his Doctor of Philosophy (PhD) in Biochemistry from the Department of Biochemistry and Molecular Biology of the College of Medicine in UP Manila. It is in the same institution where he finished his Master of Science (MSc) in Biochemistry. He currently teaches: Cell and Molecular Biology, Forensic Biology, Conservation Genetics, Living Systems: Concepts and Dynamics and Biological Evolution. He was a visiting scholar/scientist to University Strathclyde in Glasgow, UK in 2007. He is a member of UP Manila National Institutes of Health Scientific Review Council (UPM NIH SRC). And a recipient of The ONE UP Professorial Chair Award for Outstanding Teaching and Public Service in UP Manila for 2019 to 2021 and 2022 to 2024. His research work is focused on drug discovery, translational biology, molecular cytogenetics and cellular pathology. Among others, his previous research undertakings include advance chromosomal studies using fluorescence in-situ hybridization (FISH) and gene expression techniques in *Conus magus*, a marine invertebrate well known for its omega-conotoxin (Ω MVIIA). Omega MVIIA is a pain killer protein that is non-addictive better than morphine. He is also been into cancer research work that involves in-vitro and in-silico analysis of the effects of natural products against cancer cells.



PCPT Jeric C. Manalili Rpsy, Rpm

Psychologist Officer
Philippine National Police, Philippines

Profile

He's a registered psychologist and psychometrician. He is a topnotcher in the Board Licensure Examination for Psychologists, earning the 10th highest place. He is a teacher, trainer, researcher, clinician, mental health advocate, and a lifelong learner. He earned his bachelor's degree in psychology at Tarlac State University, and Master of Science in Psychology at Holy Angel University. As a scholar, he is now a candidate for Doctor of Philosophy in Psychology Major in Forensic Psychology at Far Eastern University-Manila. By far, he has conducted several local and international trainings and seminars to various educational, corporate, governmental, and non-governmental organizations concerning his field of expertise. He is also a research enthusiast and was able to present his works in a local and international research forum and publish it in international and reputable high indexed journals. He is a former faculty member of Tarlac State University, Holy Angel University under the College of Criminal Justice Education and Forensics, and Philippine National Police Academy (PNPA). In 2021, he was adjudged as the Best Performing Professor and Best Subject Matter Expert of the Philippine National Police Academy. Further, the Philippine National Police named him the Best Police Psychologist of the Year in August 2023. Professionally, our guest speaker is an active member of the Philippine Mental Health Association, Psychological Association of the Philippines, and New Zealand Association of Positive Psychology. Presently, he is the Chief Psychologist of the Philippine National Police Regional Office.



Dr. Niño M. Kabiling, Rcrim.

Dean, College of Criminal Justice
Education & Forensics,
Holy Angel University, Philippines

Profile

Dean Niño M. Kabiling is a Criminologist by profession. He is the Dean of the College of Criminal Justice Education and Forensics (CCJEF) at Holy Angel University, Angeles City, Philippines. Appointed as the youngest Dean at the age of 25. He graduated with a BS in Criminology, MS in Criminal Justice with a Specialization in Criminology, and a Doctor of Philosophy in Criminology at the Philippine College of Criminology, Manila, Philippines, in 2011, 2014, and 2017, respectively. Aside from being a Registered Criminologist, he holds various government eligibility administered by the Civil Service Commission, such as Career Service Professional Eligibility, Fire Officer Eligibility, and Penology Officer Eligibility, which he landed 2nd place in 2016. He has traversed a path of continuous learning and growth, holding various local and international training and certifications in different fields of Forensic Science, such as Fingerprint Examination, Polygraph Examination, Digital Forensics, Mobile Forensics, and 3D Crime Scene Investigation. His academic journey, marked by dedication and intellectual prowess, has equipped him with the knowledge and skills to become a leader and innovator in his field. He is an active Professional Criminologist Association of the Philippines (PCAP) member and the Vice-Chancellor for External Affairs of the PCAP – Region 3 Chapter. He also served as ISO 9001:2015 Internal Quality Auditor and the Commission of Higher Education Region 3 – Regional Quality Assessment Team member. Likewise, he is also a member of the Philippine National Police (PNP) - Regional Mobile Force Battalion 3 (RMFB 3) Advisory Council. Not only has he excelled in academia, but he has also brought his wealth of expertise to various platforms as a speaker and visionary leader. He has been a sought-after speaker at national and international conferences, sharing his insights on Criminal Justice and Forensics.



Dr. Kimberly Anne Plomp

Associate Professor
Head of the Human Osteoarchaeology,
Palaeopathology & Evolution (HOPE) Lab.
School of Archaeology,
University of the Philippines, Diliman

Profile

Dr. Kimberly Plomp is a biological anthropologist whose work intersects with several related fields, including human osteology, palaeopathology, forensic anthropology, and evolutionary medicine. She obtained her BA in biological anthropology from the University of Alberta, Canada, her MSc in Human Osteology and Palaeopathology from the University of Bradford, and her PhD in Anthropology and Archaeology from Durham University in the UK. She is now Associate Professor and Head of the Human Osteoarchaeology, Palaeopathology, and Evolution laboratory in the School of Archaeology at the University of the Philippines Diliman.



Dr. Charesma Grace K. Lud-Ayen

Dean,
School of Criminal Justice and Public Safety
University of Baguio, Philippines

Profile

Dr. Charesma Grace Killip-Lud-ayen is a Registered Criminologist, Researcher, National Lecturer, and Speaker. She ranked number 8 in the Licensure Examinations for Criminologists in 2004. Her stint in the academe started in 2004 as a faculty member at the University of Baguio. She became the Student Body Adviser, Research Coordinator, Program Chair, and now the University of Baguio School of Criminal Justice and Public Safety dean. She was constantly awarded as a top-performing teacher at the University of Baguio and later awarded Top 1 Outstanding Academic Head by the Private Education Retirement Annuity Association. The Professional Regulation Commission appointed her as a member of the Careers of the Progression and Specialization Program-Credit Accumulation and Transfer System Program Management Committee. She also serves as Advisory Council for the Regional Internal Affairs Service-CAR, PNP Anti-Cybercrime Group Cordillera, Philippine National Police Training Institute Regional Training Center 1, Regional Police Security and Protection Unit Cordillera - PSPG, Bureau of Jail Management and Penology Baguio City Jail Male Dormitory and Cordillera Administrative Region Training Center (CARTC). She was recognized by QS Quacquarelli Symonds in 2023 for serving as a Judge in the 2023 QS Reimagine Education Awards. As a national speaker and lecturer, her specialization is the Sociology of Crimes, Correctional Administration, and Criminal Detection and Investigation. She is a Professional Criminologists Association of the Philippines, Inc member. She serves as an officer for the Professional Criminologists Association of the Philippines, Inc. - Cordillera (Regional Secretary) and Vice Chairperson of the Council of Criminal Justice Educators – Cordillera. She is also an active member of the Institute of Industry and Academic Research Incorporated, the Asia Pacific Movement for the Advancement of Pedagogy and Research, the Asian Qualitative Research Association, and the International Association of Scientists and Researchers.



Keshav Kumar (IPS)

Retired Director General of Police
Director Anti Corruption Bureau, Gujarat
Consultant, Govt. of Assam,
Home Dept. & Political Affairs

Profile

Keshav Kumar, a distinguished officer of the Indian Police Service, belongs to the 1986 batch of the Gujarat Cadre. His illustrious career includes serving as the Director General of Police and Director of the Anti-Corruption Bureau in the Gujarat State Police. Beyond his policing responsibilities, he has been a Consultant to the Government of Assam in the Home Department and Political Affairs. With a wealth of expertise in forensic sciences, he serves as a Resource Faculty at the National Forensic Sciences University in Gujarat. He holds the position of Emeritus Resource Faculty at Rashtriya Raksha University in Gujarat and is also an Adjunct Professor in Forensics at Gujarat University. Kumar is actively involved in shaping the future of forensic sciences as the Vice President of The IPF Indian Police Foundation's Centre for Forensic Sciences. His commitment to ensuring ethical practices extends to his role as an Independent External Monitor for the Central Vigilance Commission, Government of India. Additionally, he contributes to the script evaluation process as a Script Evaluation Officer for the Ministry of Information & Broadcasting, Government of India. Throughout his distinguished career, he has earned numerous accolades, including the Protector International Award for Excellence in Forensic Science and the Wildlife Service Award from Sanctuary Asia. His exemplary service has been recognized with the President's Police Medal for Distinguished Services and the President's Police Medal for Meritorious Service. Notably, he received the Manthan South Asian and Pacific Award for Innovation in Medical Facilities, showcasing his commitment to advancements in Custodial Health Care. Kumar's influence extends beyond borders as he has participated in various conferences and delivered lectures, contributing to the training of professionals both nationally and internationally. His dedication to the field of policing and forensic sciences remains unwavering, making him a respected figure in law enforcement and public service.



Dr. G. K. Goswami IPS

Additional Director, General of Police
Founder Director, UPSIFS Lucknow

Profile

Dr. G. K. Goswami, M.Sc., LL.M, PhD (Medicinal Chemistry), PhD (Law), DSc (Forensic Sciences and Law) joined IPS in 1997. Currently, he is the Founding Director of the Uttar Pradesh State Institute of Forensic Sciences (UPSIFS), Lucknow, India in the rank of Additional Director General of Police. In 2022, he has concluded the Fulbright-Nehru Academic and Professional Fellowship (2020-21) as Flex Awardee hosted by Prof. Jens David Ohlin, the Dean of the Cornell law School, Ithaca NY on the global legal challenge “Wrongful Convictions and Innocence Claims”. Earlier he has served as the Chief of Anti-Terror Squad (ATS) of the State of Uttar Pradesh (UP). He has also served for more than 07 years on deputation to the Government of India in various capacities in the prestigious Central Bureau of Investigation (CBI), India. Earlier, on foreign deputation, he served as an expert on organized crimes in the United Nations Office on Drug and Crime (UNODC). In the State of UP, he served as District Police Chief (SSP) in various districts. Hon’ble President of India has honoured him 2nd Bar by decorating three times with Police Medal for Gallantry, the highest national award for Police. He is also proud recipient of the Police Medal for Meritorious Service conferred by the Hon’ble President of India. His Excellency the Governor of Uttar Pradesh has also conferred upon him Gold Medal for Gallantry. In 2018, awarded second Ph.D. from Tata Institute of Social Sciences, Mumbai titled “Enabling Access to Justice in Sexual Offences: Role of DNA Profiling”. In 2020, the National Forensic Sciences University (NFSU), Gandhinagar has awarded him prestigious D.Sc. (Post-doctoral degree) on “Role of Forensics in Strengthening Child Rights under the POCSO Act, 2012” under the supervision of Padam Shree Dr. J.M. Vyas, Vice Chancellor. He became FIRST INDIAN to have this prestigious academic distinction at global landscape. In 2024, Dr. Goswami has been nominated as a member of the Academic Council of Tata Institute of Social Sciences (TISS), Mumbai. In 2022, he has been awarded prestigious Kumarappa-Reckless Award by the Indian Society of Criminology. TISS, Mumbai; National Law University (NLUD), Delhi; National Forensic Science University (NFSU), etc. in recognition of his academic and professional contribution, have designated him the Distinguished Professor of Law.



Prof. (Dr.) Asha Srivastava

Professor of Practice
Dean, School of Behavioural Forensics
Center Head, CoE, Investigative &
Forensic Psychology
National Forensic Sciences University, India

Profile

Prof. (Dr.) Asha Srivastava is currently working as a Professor of Practice and Dean of Behavioural Sciences at NFSU. She is the Centre Head, CoE in Investigative & Forensic Psychology, and the Centre Head, Centre of Happiness and Wellbeing. She served as a Principal Scientific Officer and Head of the Forensic Psychology Department at the Central Forensic Science Laboratory (CFSL), Central Bureau of Investigation (CBI), New Delhi. She has more than 28 years of experience in the field of forensic psychological techniques. Besides this, she has 05 years of experience in the fields of Applied Psychology and Clinical Psychology. She also worked as a lecturer, psychologist, and assistant director in different organizations. In addition to this, she has appeared in numerous courts as an expert witness. She has examined more than 5000 subjects in 1700 cases referred by the CBI, NIA, Delhi Police, Armed Forces, and other law enforcement agencies in the country. The high-profile cases were examined, analyzed, interpreted, and reported with the help of different forensic psychological techniques. Some of these cases done by her are the Pathankot Air Base Attack, the Sheena Bora murder case, the Sunanda Pushkar death case, etc. She has taken membership in the International Associate of the British and European Polygraph Association and the International Associate of the American Psychological Association. She is a Life Member of the Indian Science Congress, Indian Forensic Science, the Indian Association of Clinical Psychologists, etc.



Shams Tahir Khan

Managing Editor
AajTak and CrimeTak

Profile

Shams Tahir Khan is one of the most popular anchor/reporter in the genre of crime reporting in India. An acclaimed presenter, he is widely known for his investigative skills and a rare sensitive approach toward stories reporting crime. He started off as a crime reporter in 1993 with the Hindi daily "Jansatta". And after seven eventful years with the daily, he joined TV Today Network Ltd. (Aaj Tak) in the year 2000. This was the beginning of the TV news era in India and he quite aptly took on the challenges. Backed by 15 years of experience in crime reporting he started to give a new dimension to crime reportage on Indian television. He conceptualized "Jurm"- a weekly crime show on Aaj Tak that became an instant hit. Thereafter he anchored and produced "Vardaat", a daily half-hour crime show on Aaj Tak which also became hugely popular. Both the shows were the first of their kind on Indian television and were later followed in concept and format by other news channels. Over the years he has most efficiently led the crime team in Aaj Tak. Besides routine crime shows he has also ably guided the coverage of major crime and terrorist-related incidents all over India. Under his supervision, Aaj Tak recently launched a new crime show "Raaz" based on the use of forensics in solving crime. Again this was the first show of its kind on Indian television. He is best known for his unique approach in covering crime with a humane touch. Something that is frequently found lacking in crime reportage these days. Also, his distinctive style and flair make him stand apart from the rest of his contemporaries. Beyond television, Shams leads Digital Crime Tak, where his unique investigative storytelling is highly appreciated by a vast digital audience. His daily show at 9 pm has garnered significant acclaim from viewers. Beyond television, Shams leads Digital Crime Tak, where his unique investigative storytelling is highly appreciated by a vast digital audience. His daily show at 9 pm has garnered significant acclaim from viewers.



Dr. Harsh Sharma

OSD (Academics),
Department of Forensic Science
NFSU, Bhopal, Madhya Pradesh

Profile

Dr. Harsh Sharma, currently serving as an Officer on Special Duty at the National Forensic Sciences University, Bhopal Campus, boasts a distinguished career in forensic science. Retired as the Director of the State Forensic Science Lab in Madhya Pradesh, he has also held the position of Head of the Forensic Department at the Central Academy for Police Training under the Ministry of Home Affairs, Government of India, in Bhopal. Over his extensive 38-year career, he has examined approximately 4500 cases spanning Homicide, Arson, Suicide, Sexual Assault, Theft, and more. His remarkable efficiency is evident in achieving a 100% success rate in solving rape cases within an unprecedented 48 hours, resulting in culprits receiving sentences ranging from life imprisonment to the death penalty. Notably, he headed the only laboratory in Asia to pass the International US DNA efficiency test. In 2018, Madhya Pradesh, under his leadership, achieved a record-breaking 18 convictions with death penalties in rape cases, earning the state a Limca Golden Book World Record recognized by the United States. His accomplishments have earned him accolades from the Chief Minister of Madhya Pradesh, Shri. Shivraj Singh Chauhan, the then DGP Shri Rishi Kumar Shukla later who became the Director of CBI and recognition from Prime Minister Shri Narendra Modi. He is recipient of Dr. B.R. Sharma Lifetime achievement award, recipient of EET CRS Academic Brilliance Awards-2019, Felicitated with a Lifetime achievement award in the 4th International Forensic Science conference Dec-2023 and a Fellowship Award from the Indian Association of Medicolegal Experts for doing outstanding work in Forensic Science. His international exposure includes presentations at conferences in Japan, the USA, the UK, and Saudi Arabia. He has also been a regular faculty at various police and judicial academies, contributing to both national and international journals. His expertise extends to his role as the youngest member of the NABL team inspecting the Mobile Forensic Unit of DFS, Gandhinagar, Gujarat. He was a member of the International Society of Forensic Science and the Indian Society of Toxicology, he presently serves as the Vice President of the Indian Medicolegal Experts Association. Widely sought after by news channels for expert opinions on high-profile cases, he remains a prominent figure in the field of forensic science in India.



Prof. (Dr.) Mukesh Thakar

Prof. and Head of Department
Department of Forensic Science
Punjabi University, Patiala, Punjab

Profile

Dr. Mukesh Thakar, a Ph.D. in Forensic Science, has extensive experience in forensic biology and serology, including DNA profiling, criminalistics, fingerprints, and crime scene investigation. He has worked as a Professor, Associate Professor, Reader, and Lecturer in the Department of Forensic Science at Punjabi University, Patiala, and has organized international symposiums and workshops. He has authored chapters in renowned publications and reviewed manuscripts for the Ministry of Information & Broadcasting. He has participated in national projects and initiatives, including the e-PG Pathshala Project and he has also been a member of the Academic Advisory Committee of the MHRD in the subject of Law and Legal Studies



Adv. Bharat Chugh

Lawyer,
Founder, The Chambers of Bharat Chugh

Profile

Mr. Bharat is currently serves as a member and represents India at Young SIAC (Singapore International Arbitration Centre) committee. He has also assisted the Delhi International Arbitration Centre (annexed to the Delhi High Court) in revising and streamlining its arbitration rules. He also has a keen interest in academia and is a resource person at various academies and has trained hundreds of serving and retired IPS officers, judges, prosecutors, investigators, arbitrators, company secretaries - from across the country. He has delivered talks, conducted seminars/training programs and participated in panel discussions organized by: ASSOCHAM, Ministry of Corporate Affairs, Singapore International Arbitration Centre ("SIAC"), Delhi Judicial Academy, J&K Judicial Academy, National Police Academy (Hyd.), Delhi Police Academy, HIPA (Gurugram), Lal Bahadur Shastri National Academy of Administration (LBSNAA), Centre for Criminology and Victimology, Legal Services Authorities, IIHS, Ministry of Consumer Affairs, Law Schools & the ICSE, amongst others. He's spoken on various aspects of arbitration law, tech law, electronic evidence, cyber and white-collar crimes. He was also appointed as amicus curiae and went on to represent several unrepresented defendants in serious criminal cases as a friend of the Court before the Hon'ble High Court of Delhi. He argued in as many as 12 serious criminal cases on a single day and assisted the Hon'ble Delhi High Court (hearing Criminal Appeals) in deciding a huge number of criminal appeals on a single day, thereby helping the court set new standards of efficiency, while at the same time - ensuring competent legal representation and a fair trial for the defendants who could not afford a proper counsel. He has participated in various legislative/policy discussions including those relating to the overhaul of Indian criminal laws, arbitration, specific relief act, amongst others. His views/stories have also been featured in The Indian Express, CNN, Hindustan Times, Business Standard, amongst others. Bharat has written numerous columns on a wide-array of legal and social issues. He is widely regarded for his strategic advice, defence skills, court-craft, persuasive argumentation, cross-examination skills and is valued for his 360-degree view of disputes. He has led as a counsel on various international and domestic arbitrations, and challenging criminal cases. He runs the Chambers of Bharat Chugh with offices in Gurugram and Delhi with a team of about 10 lawyers. He has also currently represents the committee appointed by the Hon'ble Supreme Court of India on the Manipur issue, as a Counsel.



Dr. Rajesh Verma

Retd. Director of Forensic Lab
Shimla, Himachal Pradesh

Profile

Dr. Rajesh Verma retired as Director of Forensic Services, HP, with over 31 years of scientific research, a Ph.D. in Physics, and extensive administrative experience. He is passionate about advancing crime scene investigation, evidence analysis, and the application of computing and statistics in Forensic Science. He had diverse roles, including Director of the Directorate of Forensic Services and Head of the Regional Forensic Science Laboratory, and Head of a scientific division (Physics and Ballistics) in a forensic laboratory, with a comprehensive understanding of forensic science. He have extensively published throughout my career and developed expertise in forensic voice comparison and facial identification, having developed automatic comparison software for the same. He have collaborated with the academia and have executed R&D projects.



Dr. Rajinder Singh Chandel

Professor & Former Head
Department of Forensic Science
Punjabi University, Patiala

Profile

Dr. Rajinder Singh Chandel carried out his Ph.D research work on “Hair Characterization of Schedule-1 Felids of Wildlife (Protection) Act-1972” in collaboration with Wildlife Institute of India (WII), Dehradun, which led him attain Ph.D. in 2008 from Punjabi University, Patiala. He has been actively involved in the research work related with forensic characterization of body fluids, trace cosmetics evidence, inks, paints, diatoms, grasses, poisonous plants, hair of various species protected under Wildlife (Protection) Act-1972 and other evidentiary materials of biological origin using morphological, chromatographic, spectroscopic and DNA based techniques. He has been involved in regular teaching and research in the area of Forensic Biology and Forensic Chemistry since 2003 at Punjabi University, Patiala. He has also served as founder professor & Dean, Academic at Uttar Pradesh State Institute of Forensic Science, Lucknow on deputation basis. He has published 86 research papers in various international and national journals. He has also contributed reference mtDNA sequences for the identification of highly endangered and protected cats of India in the NCBI (GenBank). He has supervised the research work of 11 Ph.D. research scholars and 87 M.Sc. students. He has been involved in many training courses on wildlife forensics and illegal wildlife trade to Judges/Magistrates, Prosecution officers, Deputy SP/ ACP or above, Forest officers, SSO or above from CFSL's and FSL's across the country at erstwhile LNJN NICFS, CDTI Jaipur & Chandigarh, and CAPT, Bhopal, MHA, GoI, New Delhi. He has also been a resource Person in around 65 conferences/symposia/workshops of national and international repute. In recognition to his contribution and vision in the field of Forensic Science, he has been appointed as Visiting Professor at Xi'an Jiaotong University, Shaanxi and Chair Professor at East China University of Political Science and Law, Shanghai in China (2017-2020). He is also serving as expert consultant at the Advanced Institute of Wildlife Conservation (AIWC), Govt. of Tamil Nadu, Vandalur, Chennai.



Dr. VijayPal Khanagwal

Medico-legal Advisor, Govt. of Haryana
Professor and Head
Dept. of Forensic Medicine & Toxicology
Kalpana Chawla Govt. Medical College
Karnal

Profile

Dr. Vijay Pal Khanagwal is currently working as Professor & Head in the Department of Forensic Medicine and Medical Superintendent at Kalpana Chawla Govt. Medical College & Hospital, Karnal (Haryana). He is also the Medico-legal Advisor to the Govt. of Haryana. He has more than 34 years teaching experience in Forensic Medicine and working as Professor in the Specialty for the last 17 years. He passed his MD degree in Forensic Medicine in 1992 from Pt. B.D. University of Health Sciences, Rohtak and did LLB from M.D. University, Rohtak and subsequently, completed Master of Human Rights from Pondicherry University. Till now, he has supervised 10 MD theses and co-supervised 1 PhD thesis. He is an active member of various Scientific Associations like World Association for Medical Law; Global Academy of Forensic and Investigative Medicine & Sciences (GLAFIMS); Indo-Pacific Association of Law, Medicine & Science; Indo-Pacific Association of Forensic Odontology; Indian Academy of Forensic Medicine and Haryana Medico-Legal Society etc. He was elected as President of the Punjab Academy of Forensic Medicine & Toxicology for the period 2020-22, President of the Global Academy of Forensic & Investigative Medicine & Sciences (GLAFIMS) for the year 2024 and Vice-President of the Indian Academy of Forensic Medicine consequently for the second time i.e. from 2019-2022 and 2022-2025. He has been awarded several times for his academic activities at various National & International levels as well as for the various social activities by many Organizations. He has attended more than 60 Scientific Conferences and Workshops and presented more than 50 Papers, delivered more than 25 Guest lectures and chaired more than 30 Scientific Sessions in the various National and International Conferences. He has published more than 85 Scientific Research Papers in the various National and International journals.



Dr. Ankit Srivastava

Associate Professor,
The West Bengal National University
of Juridical Sciences, Kolkata

Profile

Dr. Ankit Srivastava conferred the Ph.D. degree in Forensic Science. Currently he is serving as a Associate Professor and Head, School of Forensic Sciences, The W.B. National University of Juridical Sciences, Kolkata. He also served as Director, Centre for Studies & Research in Forensic Sciences, WBNUJS, Kolkata, India. Previously he has rendered services to Dr. A.P.J. Abdul Kalam Institute of Forensic Science & Criminology, Bundelkhand University, Jhansi, UP, India as an Assistant Professor as well as Head/Coordinator. He has also been attached to different administrative positions like Assistant Proctor and Assistant Dean Student Welfare in Bundelkhand University, Jhansi. He has more than 17 years teaching and research experience in the field of forensic sciences. During his 17 years of journey, he has authored several research papers published in different journals of national and international depute. He has been visited and invited by various countries namely, U.S., U.K., Netherland, Singapore, Thailand, China, New Zealand and Czech Republic for lectures and presentations. More than 70 students have qualified UGC- NET/JRF exam under his guidance. In addition to this, he is also Editorial Board Member in different journals of national and international fame. He is also providing his services as reviewer in various journals. He has organized more than 07 National/International level conferences and seminars. He is also associated with prestigious Rutgers University Camden, USA as an external supervisor. He is associated with various reputed universities/institutions as a member of Board of Studies or external subject expert.



Dr. Ritesh Shukla

Associate Professor
Ahmedabad University

Profile

Dr. Ritesh K. Shukla is an accomplished academician, working as an Associate professor in the Biological and Life Sciences division of the School of Arts and Sciences at Ahmedabad University, Ahmedabad Gujarat. He has research expertise in diversified fields of Toxicology (Genetic toxicology, Nanotoxicology, and radiation toxicology) and Forensic Science (Forensic Nanotechnology, Food Forensics, and DNA Forensics). He has published more than 50 research articles, and 18 book chapters in international peer-reviewed Journals and publishers. In Addition, he edited 3 books, including Forensic Nanotechnology published by NOVA Science Publishers, New York, US in 2019, Nanotoxicity published by Elsevier in 2020 and Forensic Microscopy- Truth under the Lenses published by CRC Press in 2022. He received the Early Career Research Award from the Science and Engineering Research Board (SERB), Department of Science and Technology, Government of India in 2016 for the Forensic Biology Research Project. He was recognized among the world's top 2% of researchers by Stanford University for the year 2022 for Legal and Forensic Medicine, Pharmacology and Pharmacy, and Clinical Medicine. He was also the recipient of the Young Scientist Medal by the International Association of Advanced Materials (IAAM), Sweden for his contribution to the field of Forensic Nanotechnology. Along with the research award, his teaching skills have also been recognized and awarded by Ahmedabad University. He received the Chairman's Award for Excellence in Teaching in 2017 and the Chairman's Award for Experiment to Advance Active Learning (Innovation in Teaching) in 2021. Besides teaching and research, he is also active in disseminating his knowledge as a subject matter expert for DNA Forensics and Fingerprinting for Tata Consultancy Services (TCS), Mumbai, India. He is a member of many prestigious scientific societies in the field of forensics like the Silk Road Forensic Consortium, China (Founded by Professor Henry C. Lee) and "The International Society for Forensic Genetics" (ISFG).



Dr. Rajesh Kumar

Head, Dept. of Forensic Science
Govt. Institute of Forensic Science
Aurangabad, Maharashtra

Profile

Dr. Rajesh Kumar is a seasoned forensic scientist, academician, and researcher. He completed his M.Sc. and Ph.D. in forensic science. He excels in the areas of AI and ML and their forensic applications, with the experience of more than seventeen years. His area of research includes computational forensics, multimedia forensics, machine learning, and forensic statistics. His impactful research has been showcased in numerous international publications and research projects by reputed agencies like DFSS, New Delhi, and RGSTC, Mumbai. Dr. Kumar's practical contributions include examining 300+ cases, reconstructing 50 crime scenes, and developing globally recognized automatic signature verification systems. He is a renowned public speaker and trainer and has delivered more than 80 invited talks in conferences and workshops organized by various organizations, including IIT Bombay and CBI Academy, Ghaziabad. Currently, Dr. Kumar is heading the Forensic Science Department at the Government Institute of Forensic Science, Aurangabad, Maharashtra. He received numerous awards, including the Young Scientist Award from the Ministry of Home Affairs, Govt. of India, New Delhi, underscoring his significant contributions to the field.



Dr. Sumit Chaudhary

Sr. Assistant Professor
Rashtriya Raksha University

Profile

Dr. Sumit Kumar Choudhary is currently working as Sr. Assistant Professor, Rashtriya Raksha University. He is a Gold Medalist in Forensic Science from National Institute of Criminology and Forensic Science, Ministry of Home Affairs, New Delhi and holds a Ph.D. degree in Forensic & Behavioural Science and boasts of a highly decorated academic profile with several academic credentials in the field of Forensic Science, Criminology, Police Administration & National Security. His Professional experience of spanning about 14 years involves his association with National Forensic Sciences University in capacity of a UGC Research Fellow which was followed by his appointment as the first faculty member in the first police university of India, Rashtriya Raksha University. He has served Rashtriya Raksha University in various capacities such as Academic Head of the university, Member of Board of Governors, Academic Council, Finance Committee, Programme Coordinators, University Vigilance Officer, Dean Forensic Science, Dean Training & youngest & longest serving Registrar of the university. He has been delivering lectures to serving Police Officers, Judges, Private security officers and students of Indian and renowned foreign universities. He has trained the police officers and other Criminal Justice system officers of more than 10 countries through various programmes of Ministry of External Affairs, Gol. He was a member of the Technical Group in the BPR&D National Level Committee for “Developing SOP in Crime Scene Photography & Videography” constituted under the directives of Hon. Supreme Court of India during June 2018. He has been nominated a member in 5-member National Level Committee constituted for planning & implementation of NABL Accreditation of all fingerprint bureaus of the country. He was appointed as Chairperson of the BPR&D appointed National Committee for development of E-Content in Forensic Science for Police Officers. He is Life Member of The Indian Science Congress Association, of Forensic Science Development Society, etc. He has been awarded with “Academic Excellence Award 2020” and “Best Academician Award – 2023” in the International Conference on Forensic Science.



Dr. Surbhi Mathur

Associate Professor
National Forensic Sciences University
Gujarat

Profile

Dr. Surbhi Mathur is currently working as an Associate Professor and Associate Dean at the School of Forensic Science, National Forensic Sciences University. She is a UGC-JRF and completed her doctorate in Forensic Voice Examination from Gujarat Forensic Sciences University, Gujarat. Her area of specialization is Forensic Physical Sciences and Multimedia Forensics. She has 13 glorious years of teaching and Research Experience in forensic science. She has guided over 60 master-level dissertation projects and is supervising her PhD students in forensic physics, multimedia forensics and questioned document examination. She is actively involved in imparting forensic training to Senior Police officers, Probationary police officers, Hon'ble Judicial Magistrates, Assistant Public prosecutors, CBI officials and police officers coming from Nepal, Bangladesh, Rwanda, Ghana and Myanmar, and officials of other international countries. She has undergone several hands-on trainings on various forensic tools and software organized by various government and private sectors. Dr. Surbhi Mathur has presented several research papers at many prestigious national and international conferences and has received several awards for the same. She has 35 research publications in various peer-reviewed and scopus-indexed journals. She has completed a national research project titled "Critical analysis of the effectiveness of CCTV in law enforcement (crime prevention, detection traffic management etc)" for Ministry of Home Affairs, Govt. of India.



Dr. Jaysankar P. Pillai

Tutor,
Dept. of Oral & Maxillo-Facial Pathology
Govt. Dental College and Hospital
Ahmedabad

Profile

Dr. Jayasankar P. Pillai Graduated BDS from Mahatma Gandhi Post Graduate Institute of Dental Science, Pondicherry in 1997. Working as a faculty for the last 26 years at Govt. Dental college and Hospital, Ahmedabad. Underwent Fellowship training in Forensic Odontology from the Indian Board of Forensic Odontology (IBFO) in 2015. Completed Master's degree in Forensic Odontology with Gold Medal from Gujarat Forensic Sciences University (GFSU), Gandhinagar. He is currently a PhD scholar at National Forensic Sciences University, NFSU Gandhinagar. Handled more than 400 medico legal cases for age estimation and investigated several skeletal remains cases for age estimation and sex identification and bite mark case referred from the Forensic Medicine department of BJ Medical College, Ahmedabad. Appeared as Expert Witness in Age estimation cases under POCSO Act, 2012 in Sessions court in Gujarat. Published several original research articles in National and International journals like Forensic science International- Reports, Medico-Legal journal, Egyptian Journal of Forensic Science, Indian Journal of Dental research, Journal of Forensic Radiology and Imaging, and in the speciality journals of Oral Medicine and Oral Pathology. Member of Indian Society for Dental Research (ISDR), International Association of Dental Research (IADR), Indian Association of Forensic Odontology (IAFO). One of the Board of Directors in the Association of forensic Odontology for Human Rights(AFOHR). He is currently the Hon. Secretary of the Indian Association of Forensic Odontology (IAFO). Recipient of Fellowship award from Indian Society for Dental Research (ISDR) in 2007 for his contribution to Dental Research. Also a recipient of Founder President award for excellence in dental research by ISDR in 2010. Recipient of the 'Forensic Odontologist of the year 2023' award from Cynodont.



Atty. Aloï Renz P. Santos

Attorney IV,
Commission on Human Rights–Region III
Professor, School of Law
Tarlac State University
Legal Consultant
Magnetic Land Services, Philippines

Profile

He is currently one of the Attorneys of the Legal Division of the Commission of Human Rights, Region III Office. He graduated Valedictorian in elementary, high school, and received magna cum laude distinction in his Bachelor’s degree. He took his juris doctor at the University of Sto. Tomas and passed the Bar Exams 2019. Aside from his full-time work in the commission [and his commitment as a legal consultant to his family-owned land services office], he manages to work as a part-time professor and shares his content expertise to undergraduate and graduate students of La Consolacion University of the Philippines, Bulacan State University, Pamantasan ng Lungsod ng Maynila and Tarlac State University-School of Law. He teaches Obligations and Contracts, Business Laws, Regulatory Framework and Legal Issues in Business, Introduction to Constitutional Law, Foreign Investments Law, Legal Research and Human Rights. He is a proud alumnus of the Global Undergraduate Exchange Program in University of Tennessee, Knoxville Tennessee, USA— a scholarship program administered by Philippine-American Educational Foundation — or also known as Fulbright Philippines. a speaker for various contents, causes, and advocacies, a co-founder of Polaris Philippines and BulSU-OSO Sail Program, an editor-in-chief, a student-leader, and a member of different community-led organizations in local, national and international levels. He is Atty. Aloï Renz P. Santos.



Dr. Mary Jane Louise Bolunia

Museum Curator II, Archaeology Division
National Museum of the Philippines

Profile

MARY JANE LOUISE A. BOLUNIA, PhD is the Museum Curator II/Chief of the Archaeology Division of the National Museum of the Philippines. She finished her Doctor of Philosophy (Anthropology) and Master of Arts (Anthropology) from the University of the Philippines. She has research interests are focused on maritime trade and exchange from Protohistoric to the Spanish Period including the documentation of traditional boats (baroto). Most of her researches have been conducted in southern Luzon (Sorsogon) and northeastern Mindanao (Butuan) focusing on shipyards and early boats respectively. As head of the Archaeology Division she oversees the division's exhibition contribution to the National Museum of Anthropology building and other component museums of the National Museum of the Philippines whose mandate includes establishing museums around the country. She is also engaged in heritage work as a member of the National Committee on Monuments and Sites of the Sub-Commission on Cultural Heritage of the National Commission for Culture and the Arts (NCCA), the Philippines' primary government arm mandated to protect, develop, and promote Philippine arts and culture. Dr. Bolunia is a Professorial Lecturer at the University of the Philippines Manila, teaching archaeology and anthropology courses.



Atty. Jewel O. Dela Cruz

School of Law Faculty, Tarlac State Univ.
Country Program Manager, ICMEC
Master of Laws, University of Maastricht
The Netherlands

Profile

Jewel Dela Cruz is a children's rights lawyer admitted to the Bar in the Philippines. She holds a Master of Laws in Forensics, Criminology, and Law, cum laude, from Maastricht University, the Netherlands, where she she was full scholarship awardee of the Dutch government. She obtained her Juris Doctor degree, class salutatorian and her bachelor's degree in Business Administration, cum laude. She has successfully prosecuted online sexual abuse and exploitation and human trafficking cases before Philippine courts and successfully obtained restitution awards before U.S. and Australian courts. She is currently the Country Program Manager for International Centre for Missing & Exploited Children. Most recently, she was in The Hague, The Netherlands for a professional placement in an international court under a European Commission grant. She serves as a lecturer in Tarlac State University-School of Law and Saint Louis University- Graduate School of Law. She conducts talks, training, and lectures on children's rights, women's rights, artificial intelligence, and digital forensics to lawyers, government leaders, advocates, educators, and students, a task she enjoys the most.



Dr. Atty. Ariel D. Valones

Cardiologist Consultant,
Philippine Heart Center,
Manila Medical Hospital,
Manila Doctors Hospital

Profile

Ariel D. Valones, JD, MD, MPH, MHA, DIH, FAMP, FPCP, FPCC, FAsCC is a Cardiologist-Lawyer pursuing his Master of Laws (LLM) at PUP, with a background in law, a Juris Doctor, a Master of Public Safety, and degrees at UP for Masters in Public Health, International Health, and Hospital Administration.



Ma. Josefina Jacala

Vice President Legal Materials
Central Books, Philippines

Profile

Dr. Ma. Josefina Gonzales Jacala is a distinguished and dignified name in the Publishing Industry with more than ten (10) years in the field of producing law books and other legal materials, and authored several titles. She is the current Vice President of Central Book Supply Inc., a Juris Doctor from San Sebastian College, she also received a Doctor of Humanities Degree (Honoris Causa) from Logos University International.



Atty. Bernadette P. Baylon, J.D.

Lawyer, PLM Graduate
School of Law, Philippines

Profile

Atty. Bernadette P. Baylon is a student of the Pamantasan ng Lungsod ng Maynila, taking Master of Laws (L.L.M.). She graduated Juris Doctor at the University of Perpetual Help-Jonelta in 2021. She took and passed the Philippine BAR in 2022, took her oath and signed her Roll of Attorney on May 2, 2023. She studied BSBA major in management at Saint Joseph's College of Quezon City through the Expanded Tertiary Education and Equivalency Accreditation Program (ETEEAP) in 2014. She is an active member of the Integrated Bar of the Philippines, Laguna chapter.



Raymielle Christie Romero Magcalas

Supervising Lawyer
Tarlac State University
Marc Andrei Marcos Legal Aid Center

Profile

Magcalas is currently a Supervising Lawyer at the Marc Andrei Marcos Legal Aid Center, Tarlac State University. She is also an Associate Lawyer in Escalona Fonacier Davis Nagtalon Law office, wherein she handles contract reviews and cases ranging from civil, criminal, and land cases. She graduated with a Juris Doctor degree in 2023 and a Bachelor of Arts degree in Economics in 2019 in Ateneo de Manila University. During her tenure in the university's law school, she specialized in International Law and Development. She was also a desk head for children's rights and an intern-member for the Urduja or women's desk and Katutubo or indigenous peoples' desk at the Ateneo Human Rights Center. She was admitted in the Philippine bar in 2023.



Marilet Santos Layung

Managing Partner
Santos-Layug Law Offices
Professor
Tarlac State University, Philippines

Profile

She is Private Practitioner focusing on Criminal, Civil and Family Law. She is also a Managing Partner of Pomer Santos-Layug Ines Law Offices. She has more than 14 years in the practice of law. She is a Former President and Current Treasurer of the Integrated Bar of the Philippines, Bataan Chapter



Mykedox Knoel T. Cuchapin

Associate Dean, School of Law
Tarlac State University
Tarlac, Philippines

Profile

Atty. Mykedox Knoel T. Cuchapin, DCL Is a lawyer and scholar from the Philippines, who specializes in litigation covering family law, child rights, and legal forensic. He holds a Doctor of Civil Law degree from the University of Santo Tomas and currently serves as the Associate Dean in the School of Law of Tarlac State University Philippines.



Emanuel C. Manahan Rcrim, MCJE

Criminology, Program Coordinator
Holy Angel University, Philippines

Profile

He accomplished professional with a diverse educational background and extensive experience in the field of criminology and criminal justice education. He holds a Bachelor of Science in Criminology from Angeles University Foundation and earned his Registered Criminologist status in 2016. Further enhancing his expertise, he pursued a Master's in Criminal Justice Education with a specialization in Criminology at Wesleyan University – Philippines. Currently, he is enrolled in a graduate study Doctor of Philosophy in Criminology at the Philippine College of Criminology (PCCr). Notably, he serves as a Criminologist Licensure Examination Review Lecturer and holds the position of Business Manager for the Professional Criminologist Association of the Philippines (PCAP) – Pampanga Chapter. Mr. Manahan is a lifetime member of the International Association of Scientists and Researchers, showcasing his commitment to professional growth and collaboration. He has extensive work experience spans various roles within academia. He currently serves as the Criminology Program Coordinator at the College of Criminal Justice Education and Forensics, Holy Angel University, Angeles City, Pampanga, starting in 2022. Prior to this, he held a full- time faculty position at the same institution from 2021 to 2022. He also contributed his expertise as a College Instructor at Wesleyan University – Philippines in Cabanatuan City, Nueva Ecija, from 2018 to 2021. His leadership skills were evident during his tenure as the Program Head at Megabyte College Foundation, Inc., located in Florida Blanca, Pampanga. His commitment to education continued as a College Instructor at the United School of Science and Technology in San Isidro, Tarlac City, Tarlac, from 2017 to 2018. He remarkable journey in academia and his dedication to advancing the field of criminology make him a valuable asset to the educational community.



Atty. Mark Anthony N. Manuel, LPT

Managing Partner
MN Manuel Law Offices, Philippines

Profile

Atty. Manuel is a lawyer who has served as international resource speaker in Hong Kong, Singapore, Malaysia, Thailand and at the United Nations Headquarters in New York, USA. He is presently a Director of Integrated Bar of the Philippines (IBP) Pampanga Chapter and the Managing Partner of MN Manuel Law Office. He finished his High School education as Valedictorian at San Miguel Academy and his elementary education from Masantol Elementary School as 5th Honorable Mention. He completed his Bachelor of Laws at Arellano University School of Law and graduated at Centro Escolar University with a degree of Bachelor of Arts in Mass Communication, major in Journalism, Summa Cum Laude. He was a multi-awarded writer and journalist at the Manila Bulletin for seven (7) years. He is a Licensed Professional Teacher and has recently obtained a Certificate in Cyber Forensics. He was born in San Vicente, Macabebe, Pampanga, Philippines.



Cristina Elaine Domingo Mangrobang

Private Practitioner and Legal Consultant
Province of Tarlac, Philippines

Profile

She is a private practitioner and a legal consultant in the Province of Tarlac from 2018 to present, and a former Junior Associate of Esguerra and Blanco Law Offices in Makati, with practice area in Intellectual Property Law from 2016 to 2017. She likewise worked at the Department of Agrarian Reform during underbar as a legal officer for the Bureau of Agrarian Assistance. She is an Accredited Arbitrator under the Office for Alternative Dispute Resolution (OADR) and received Certificates of Excellence and Certificates of Attendance in Foundation Certificate in Mediation Advocacy Course, and Professional Certificate in Mediation Advocacy Course during her training in Singapore. She also attended various seminars and conferences in international law including the Asian Society of International Law (ASIANIL) 7th Biennial Conference, HCCH Asia Pacific Week and Singapore International Arbitration Centre Conference in Manila. She was a Philippine delegate at the World Federation of United Nations Associations (WFUNA) Leadership Training Program in New York City and, recently became an alumna of the Hague Academy of International Law, The Hague, Netherlands.



Atty. Mildred D. Martinez-Tria, LLM.

Founder, Martinez-Tria Lawyers
Maritime Law Trainer and Law Professor
Philippines

Profile

Atty. Mildred D. Martinez-Tria finished her degree of Bachelor of Science in Commerce Major in Accounting from the University of Santo Tomas. She took further studies and graduated from the University of the East with the degree of Bachelor of Laws. She finished her Master of Laws from the University of Santo Tomas in the year 2013 and recently graduated last June 2024 with the degree of Doctor of Civil Law from the same academic institution. She was a Litigation Lawyer and one of the Trainers of Bank of the Philippine Islands before she ventured in private practice rendering legal consultancy to clients under her law firm Martinez-Tria Lawyers. She is also a Maritime Law Trainer, a Law Professor and an author of a book entitled “Archipelagic Baselines and the Philippine Territory”. She is active in socio-civic activities and held the position as the District Chairman of District 381 and a member of the National Board of Trustees of the Inner Wheel Clubs of the Philippines for the Inner Wheel Year 2023-2024.



Archie Lawrence Geneta

Assistant Professor,
Dept. of Behavioral Sciences
College of Arts and Sciences
University of the Philippines, Manila

Profile

A Registered Psychologist, he handles cases related to annulment, sexual and marital abuse, and VAWC (Violence Against Women and their Children). His clinical and assessment experience is wide-ranging, spanning from children to adults, and covers both psychiatric and legal capacities. He is also serving as an expert witness to cases that require court testimony. His teaching career started in the University of the Philippines (UP). Currently, he is an Assistant Professor with the Department of Behavioral Sciences in the College of Arts and Sciences, University of the Philippines Manila. He is also the current chair of the Mental Health and Well Being Committee of the UP Manila Health and Safety Committee. About his educational background, he earned his Master of Arts in Psychology from the Department of Psychology. He is currently taking his dissertation for his Doctor of Philosophy in Psychology also in UP Diliman. His membership in professional organizations includes the American Psychological Association (affiliate member), the Psychological Association of the Philippines (associate member), and the Philippine Society for Training and Development (individual member).



Dr. Allesandra Fay V. Albarico, DCL

Associate Professor,
University of Santo Tomas,
Graduate School of Law
España, Manila, Philippines

Profile

Atty. Allesandra Fay V. Albarico is a former Court Attorney at the Court of Appeals before joining law firms and occupying executive and senior management roles in conglomerates and publicly listed companies in the Philippines such as Megawide Construction Corporation, Citicore Power, Ferronoux Holdings, ISOC Group, and Meralco Global Business Power. She is currently a private law practitioner, Chief Legal Officer in a global amusement company, Founder and Chairman of ICON Iloilo Power and Electric Corporation, Founder of Summit Structures Corporation. She is also a Founder of Cocina de Sta. Martha, Chairman and President of Healthy & Fab Group Inc., accredited MCLE lecturer, course director for construction law and contracts in Center for Global Best Practices, incumbent President of the Philippine Association of Certified Compliance Officers. She is presently a member of the Philippine Council for Foreign Relations, reserve military officer with the rank of Lieutenant Colonel, and member of Rotary Club Chinatown Circle. She is also the Director for NonKilling Philippines of the Centre for Global NonKilling (CGNK), an organization with United Nations (UN) special consultative status, particularly with the Economic and Social Council (ECOSOC). She is a trained arbitrator, regular member of the Philippine Dispute Resolution Center, Inc. (PDRCI), and member of PDRCI's intra-corporate dispute committee. She has attained level 2 certification with the Office of the Alternative Dispute Resolution as an accredited arbitrator and member status in the Chartered Institute of Arbitrators of London. She is also one of the World Intellectual Property Organization's (WIPO) accredited arbitrators having been invited by WIPO to join its Arbitration and Mediation Center's List of Accredited Neutrals. Aside from practicing law, She is an active member of the academe and a bar review lecturer.



Judge Edith Cynthia A. Wee-Cabbat

First-level court Judge
Philippines

Profile

First-Level Court Judge, Philippines Edith Cynthia Wee-Cabbat is a first-level court Judge in the Philippines. Among others, falling within her jurisdiction are cases covered by the Rules on Expedited Procedures, and those actions involving title to, or possession of real (immovable) property, or any interest therein with assessed value of not exceeding 400,000 Philippine peso. She holds a Doctor of Civil Law degree from the University of Santo Tomas.



Dr. Prateek Pandya

Associate Professor
Amity University
Noida, Uttar Pradesh



Dr. Salvador Nueva Moya II

Dean, College of Law
Tomas Claudio Colleges,
Morong, Rizal, Philippines



Dr. Glenn R. Luansing, DCL, PDSML

Professor and Research Director of Law
University of Santo Tomas
Graduate School of Law, Philippines



Dr. Natasha Dimeska

Coordinator for Social Services Development
Former Chief, Cabinet Ministry for Social Policy
Demographic and Youth, North Macedonia



Abel Samuel Odeh

Superintendent of Police (SP)
Nigeria Police, Nigeria



Dr. Dita Capraz

Turkish Police Academy,
Turkey



Atty. Enrico Miguel Dela Rama Dizon

Tarlac State University

ABSTRACTS

of Speakers



Dr. Henry C. Lee

Emeritus Professor, University New Haven

Founder/Director, Forensic Research & Training Center

Commissioner (RET)/Forensic Chief, CT Dept Public Safety

Abstract:

NEW CONCEPTS IN CRIMINAL INVESTIGATION

Contemporary law enforcement has greatly expanded its ability to solve crimes by the adoption of advanced forensic techniques and standardized crime scene procedures. Today, crimes often can be solved by the combination of detailed examination of the crime scene and analysis of forensic evidence and reconstruction of the crime scene. Knowledge of forensic evidence is not only crucial in criminal investigations and prosecutions, but also vital in civil litigations, major man-made and natural disasters, and the investigation of global crimes. In addition to traditional detective work, the new concept of the successful solving of cases is based upon a system which combines the following six elements.

1. Crime Scene Analysis,
2. Examination of Forensic Evidence,
3. Witness Statements,
4. Public Information.
5. Data Mining,
6. Intelligence Gathering

Advanced investigative technologies, such as GPS positioning, Cell phone tracking, electronic evidence mentoring. Video image analysis, Artificial intelligence, big database analysis, Theory formation, New DNA FIGG analysis, Trace Evidence Analysis, Pattern Evidence Recognition and Crime Reconstruction will be discussed, and the ability to observe and analysis of crime scene and Forensic Evidence and the utilization of the open and close sources of big data bases and the theory of Cloud data mining will also be covered, In addition, the utilization of forensic evidence in US court system will also disused. Many times, forensic evidence were misused and even abused by attorneys. Famous cases will be utilized to illustrate the importance of application of new concepts in criminal Investigation.

Prof. (Dr.) Robert Green OBE

Fellow & Vice President,

Chartered Society of Forensic Sciences, Division of Natural Sciences

University of Kent

Abstract:

ENHANCING JUSTICE: THE ROLE OF THE FORENSIC BIOLOGIST IN SEXUAL CRIME CASES

This paper delves into the pivotal role of forensic biologists in addressing cases of sexual and gender-based violence, underscoring the critical importance of forensic science in not only identifying these crimes but also ensuring accountability for perpetrators, offering closure to victims, and preventing further victimisation within the context of India. The primary objective of this paper is to provide support and guidance to the new wave of forensic scientists emerging in the field. It emphasises the indispensable nature of robust academic programs in forensic science at both the undergraduate and graduate levels, serving as the cornerstone of effective forensic science practice (Gluodenis, 2021). Many young professionals attending the conference may already possess or be in the process of developing foundational academic knowledge, which lays the groundwork for their future work in the field. Furthermore, this paper aims to introduce and explore the contemporary professional practices of forensic biologists when handling such sensitive cases. By illustrating the complementary bond between theoretical understanding and practical application. It will demonstrate how applying acquired knowledge in real-world scenarios enhances skills and expertise within the forensic science domain.

Prof. (Dr.) Emilio Nuzzolese

Founder President, Association Forensic Odontology for Human Rights

Associate Professor, University of Turin, Italy

Abstract:

EMBRACING TECHNOLOGICAL ADVANCEMENTS IN FORENSIC ODONTOLOGY

Forensic odontology has entered an era of rapid technological advancements, thanks to digital dentistry. Therefore, it is imperative to explore new frontiers that can revolutionize not only clinical dentistry but also its applications in forensics, contributing to the progress of forensic sciences. The potential of advanced imaging techniques and artificial intelligence has the capacity to redefine several activities performed by forensic odontologists, including antemortem and postmortem dental data collection. Efficient data collection and secure archiving are fundamental to the progress of human identification of unidentified human remains. The adoption of emerging technologies, such as dental photogrammetry, three-dimensional (3D) scanning, and smart glasses, enables comprehensive dental data collection and facilitates seamless data sharing and remote collaboration. Intraoral scanners offer high-resolution 3D dental models, allowing for the development of extensive databases of dental information and serving as an invaluable tool for comparative analysis. In addition, these scanners enable both onsite and remote analysis, enhancing the field capabilities. The incorporation of artificial intelligence and machine learning algorithms further enhances the speed and accuracy of dental matching and other assessments. Dental radiology and intraoral scanning of unidentified human remains elevate the field capabilities in the process of human identification and age estimation. Collaboration among researchers, forensic professionals, and technology experts is vital to leverage these advancements. This presentation will describe virtual autopsy cases involving modern and ancient human remains, showcasing the utilization of digital tools, artificial intelligence, and the metaverse. These technologies unlock the full potential of forensic odontology in the pursuit of justice and truth, especially when forensic odontologists are not available onsite.

Keywords: Forensic Odontology, Dental Autopsy, Data Collection, Dental Databases, Intraoral Scanners

Prof. (Dr.) Ma. Teresa G. De Guzman

Professor, Department of Behavioural Sciences

College of Arts and Sciences, University of the Philippines Manila

Abstract:

UNEARTHING SECRETS, HEALING WOUNDS: BEYOND ARCHAEOLOGY, THE EXPANDING POWER OF

Traditionally confined to the realms of archaeology and conventional forensics, heritage forensics has evolved into a dynamic interdisciplinary field that extends far beyond the excavation of physical remains. This presentation examines the expanding role of heritage forensics in uncovering and preserving cultural narratives, aiding in the identification of victims, and protecting cultural heritage amidst contemporary challenges. From the perspective of a cultural anthropologist, this exploration reveals how heritage forensics serves as a bridge between the past and present, providing profound insights into human societies and their cultural landscapes. The use of techniques such as material analysis and provenance research in crime scene investigations exemplifies how heritage forensics can uncover hidden histories and restore damaged cultural treasures. Through detailed case studies, this presentation showcases the successful application of these methods in various cultural contexts. The aftermath of disasters presents unique challenges, particularly in the identification of victims at historical sites. Heritage forensics is crucial in such scenarios, offering methods to analyze skeletal and dental remains and reconstruct past events with cultural sensitivity. This presentation delves into these techniques, emphasizing the importance of preserving cultural heritage during disaster response efforts and highlighting the delicate balance between scientific analysis and respect for cultural contexts. Moreover, heritage forensics plays a vital role in understanding and mitigating the impact of development projects on historical sites. By employing techniques such as damage assessment and mitigation strategies, heritage forensics ensures that progress does not come at the expense of cultural heritage. This approach promotes a harmonious balance between development and preservation, safeguarding the cultural significance of historical sites for future generations. A central theme of this presentation is the recognition that heritage forensics is not solely about scientific expertise. It involves deep cultural sensitivity and active community engagement, ensuring that the rights and interests of all stakeholders are respected. This perspective enriches our understanding of heritage forensics as a tool for cultural preservation and community empowerment. Ultimately, this presentation aims to raise awareness of the multifaceted applications of heritage forensics. It illustrates how this field not only reveals hidden truths from our past but also plays a significant role in the restoration and preservation of cultural heritage. By fostering a deeper comprehension of our collective history, heritage forensics contributes to a more informed and stable future for all.

Keywords: Heritage Forensics, Cultural Anthropology, Material Analysis, Provenance Research, Cultural Heritage, Disaster Response, Development Impact, Community Engagement, Cultural Sensitivity, Preservation Strategies.

Prof. Ivana Cukovic-Bagic

Professor, School of Dental Medicine

Department of Paediatric and Preventive Dentistry, Croatia

Abstract:

CHILD ABUSE: HIGHLIGHTS FOR A BRIGHTER FUTURE

Child abuse and neglect (CAN) is a global problem with serious consequences, very complex and difficult to study. Around 300 million children aged 2-4 years suffer physical punishment regularly. CAN requires a multidisciplinary approach: collaboration of psychologists, pediatricians, psychiatrists, social workers, but also dentists and specialists in pediatric dentistry and forensic odontologists. These children are often “hidden” and only a fraction of victims of maltreatment gets support from health professionals. There is no doubt that early identification of an abused and neglected child is one of the most important tasks, and at the same time a moral and legal obligation of all professionals who should work for the child’s benefit. Literature related to the knowledge of dentists and other medical professionals on this issue, speaks in favor of their lack of training in recognizing the symptoms of abuse, as well as ignorance of the rules of treatment after suspected abuse. Orofacial injuries, as a result of abuse are extremely common, so their recognition is the responsibility of the dentist but no less important role is played by other members of the dental team. The four basic types of abuse are: physical, mental, sexual, and neglect. The dental neglect as a subtype of medical neglect is well defined. The main indicator of dental neglect is untreated early childhood caries, which has long-term consequences for a child's general health and could be often the only isolated symptom of a generally neglected child. The symptoms of physical abuse are found in the head and neck area in approximately 60% of all signs of physical abuse. Only by raising awareness of professional responsibility and working on education, can contribute to more effective recognition of the earliest symptoms of abuse and neglect and thus help this vulnerable group. As far as health professionals are not always “equipped” to help child victims, this lecture will give you the knowledge for proper respond to CAN cases.

Dr. Jose Ignacio Dela Rama Jr.

Dean, School of Law

Tarlac State University, Philippines

Abstract:

PROBLEM AREAS IN POSITIVE IDENTIFICATION, ALIBI AND EMERGING ROLE OF FORENSIC SCIENCE IN THE APPRECIATION OF EVIDENCE

The lecture will cover the new trends under the Rules on Evidence, especially in the preservation of the same when presented in court. The topic will cover the dilemma being encountered by the prosecutors, defense counsel and the Court as well. The topic will show how courts appreciate the Rules on Evidence and how judges comply with the generally accepted principle of positive identification. The Supreme Court is consistent to the principle that Positive Identification prevails over Alibi. Alibi being the weakest defense cannot prevail over positive identification. Once the prosecution has established positive identification, the Court has no other option but to render judgment in favor of the prosecution. It is now the turn of the defense to prove otherwise. But since Alibi is the weakest defense, chances are, the Court, in the absence of any convincing evidence, may not believe the version of the defense. The problem is, how sure are we that positive identification is reliable. There are decisions of the Supreme Court that will prove otherwise. One good example is the case of People vs. Hubert Webb. The case took several years to finish, and in the end, the case was dismissed. The case was sensationalized by media only to be dismissed later on by the Supreme Court when it was reviewed on appeal. Before Hubert Webb, et. al. was indicted, there were no less than two (2) sets of suspects rounded up and presented to the Policemen. Those persons were later on discharged and Webb was allegedly identified by a state witness Jesica Alfaro. Webb was positively identified but the defense of Webb is alibi since accordingly, he was in the United States at that time. Other similar cases were decided by the court, relying on positive identification, but in the end, it leads to acquittal on appeal. Positive identification is not 100% fool-proof. Other factors might affect human identification like poor memory, lightning or how well lighted the surrounding is, an incident which happened so fast could lead to shock which the witness might find it difficult to recall the incident. Poor vision, and suggestive acts during police line-up could also lead to confusing positive identification. In the United States, there are also similar injustices committed due to false testimony of witnesses.

Dr. Danilo Magtanong

Retd. Associate Professor, Prosthodontics and Dean

College of Dentistry, University of the Philippines Manila

Abstract:

INSIGHTS INTO FORENSIC ODONTOLOGY: A GENERAL PRACTITIONER'S PERSPECTIVE

Forensic Odontology is that branch of forensic medicine which deals with proper handling & examination of dental evidences. Evaluation & presentation of the findings is founded in the utilization of the knowledge of the dental sciences and technology to help contribute in answering some legal questions. It is the application of the principles and expertise in Dentistry for the purpose of law and investigation. In the interest of justice, it basically, relates dental evidences to investigation. This presentation talks about the general practitioner's insights into realm of the specialty showing the scientific methods that may be employed in the management, examination, evaluation and presentation of the dental findings in criminal or civil proceedings, all in the interest of justice.

Dr. Evi Untoro

Lecturer and Head, Dept. of Forensic MedicoLegal & Sciences,

University of Trisakti, Indonesia

Abstract:

FORENSIC PATHOLOGY A GLOBAL SCENARIO AND DEVELOPMENT

Forensic Pathology was the very old knowledge in medicine that needed for bringing justice in the society on crime cases and other unknown result in living nor dead people, shall provide for the resilience of the grieving family. It is challenging for globally bring the standard method in our works so it can be accepted in around the world. Some of us working in this field may have different results on our autopsy and examination, for the court and community to get the closure of the cases. Even in the war cases such as Russia-Ukraine or Israel-Palestine with so much casualties, that we have to find the facts from our examination of the bodies. On this matter, we need to have a regular meeting and discussion to make a global standard in forensic pathology and building the network in research, especially in having a database of the population of the knowledge itself, so all the results on our works will be accepted wherever we are in our institution and as an expert witness around the world. By having the discussion, collaboration in joint training and research to have a database on each cases that might arise, we can make this world a better place for our society.

Prof. Jeff Cheng-Lung Lee PhD

Professor, Department of Criminal Investigation

Taiwan Police College, Taipei, Taiwan. R.O.C

Abstract:

EMERGING TECHNOLOGIES IN CRIMINAL INVESTIGATION: A NEW ERA

This presentation aims to enhance Forensic Science and Crime Scene Investigation through cutting-edge technologies. Innovations like Augmented Reality (AR), Virtual Reality (VR), 3D animation, and Blockchain are swiftly advancing in the gaming industry and have significant implications for criminal investigations. AR and VR, in particular, can offer jurors a more immersive understanding of crime scenes. We focus on the Su Jian-He case from Taiwan, where three individuals were wrongfully convicted, partly due to the jury's misjudgment of the crime scene's spatial layout. By reconstructing the scene with a 3D model and creating a VR animation, we aim to correct the judicial error and vindicate the innocent parties using scientific methods. These technologies provide a clearer visualization of crime events, allowing users to grasp the context in which they occurred. The use of computer-generated 3D evidence reconstruction holds great promise in forensic science, simplifying the presentation of intricate spatial and temporal information for laypeople. Moreover, VR immersive capabilities and portability in crime scene reconstruction could revolutionize forensic medicine and criminal investigation, offering a new dimension of engagement and understanding.

Keywords: Emerging Technologies, Forensic Science, Crime Scene Investigation, Virtual reality (VR), Augmented Reality (AR), 3D technology

Dr. Nolasco R. Saporne, RCrim.

Professor/Faculty Member, Holy Angel University, Philippines

Abstract:

EMERGING TECHNOLOGIES AND STRATEGIES FOR ENHANCING SAFETY AND PHYSICAL SECURITY IN CASINO OPERATIONS

In recent years, the landscape of casino operations has evolved dramatically, with advancements in technology and shifting security challenges necessitating innovative approaches to safety and physical security. This presentation aims to explore the latest trends, technologies, and strategies employed by the gaming industry to safeguard patrons, assets, and infrastructure within the context of forensic science. From AI-driven surveillance systems to biometric authentication and risk assessment methodologies, this discussion will delve into the cutting-edge solutions that are revolutionizing the field of casino security. Furthermore, it will address the forensic implications of these advancements, including data analysis techniques, evidentiary protocols, and investigative methodologies utilized in the event of security breaches or criminal activities. Through a multidisciplinary lens, attendees will gain insights into how forensic science intersects with casino security, ultimately contributing to the enhancement of safety and risk mitigation measures in gaming environments.

Dr. Irene D. Valones, DCL, DPA

Court Attorney, Supreme Court of the Philippines

Subject Matter Expert on Forensics, Cybercrime, and Cybersecurity

Abstract:

CYBER FORENSICS IN THE BIG DATA AND INTERNET OF THINGS (IOTS): A TRANSNATIONAL GOVERNANCE OF DIGITAL INVESTIGATION AND EVIDENCE ACQUISITION IN THE POST-PANDEMIC ERA

In the post-global pandemic era, the digital world has become more complicated and ambiguous, with cyber-criminals lurking in the darkest space of the internet wreaking havoc, scamming people, hacking, pillaging, and concealing from authorities with virtual camouflage. While the cyberspace community has made significant strides due to existing broad legislations and legal policies, there are still challenges to cyber forensics investigation and evidence acquisition, given interoperability and jurisdictional issues with far-reaching implications in the justice system, data privacy, and security. The dynamics of Big Data and the Internet of Things (IoTs) challenge the normative structure of the cyber-physical environment towards a greater emphasis on the cyber resilience of States from cyber threats and cyber terrorism that cannot be addressed by legislation alone as digital crimes transcend across space. In this paper, the author proposes a transnational approach to institutionalize a Transnational Cyber Forensic Digital Evidence Pouch (TCFDEP) through a multilateral treaty as a standardized protocol designed to harness the cyber forensic collection, handling, preservation, and audit trail of digital evidence in multipolar stream networks. The TCFDEP is not just a solution, but a necessity to ensure the accuracy, integrity, and consistency of digital evidence. As a cyber-forensic tool, it is a response to balance privacy rights and law enforcement of authorities, and its institutionalization is essential to managing transnational digital evidence investigation and acquisition on digital artifacts and cyber forensics as a key to guaranteeing digital justice in the global village.

Jay T. Dalet, PhD

Associate Professor

Department of Biology, College of Arts and Sciences

University of the Philippines Manila

Abstract:

UNVEILING CRIME SCENE BIOLOGY: APPLICATIONS OF RNA-FISH IN FORENSIC CASEWORK ANALYSIS

Forensic casework analysis often relies on DNA-based techniques, yet RNA-based methodologies such as Fluorescence in situ hybridization (FISH) present valuable complementary tools for deciphering crime scene biology. FISH employs fluorescent probes to bind specific RNA sequences, offering insights into gene expression, mRNA processing, and cellular localization within biological evidence. This technique is particularly adept at characterizing diverse cell types present in body fluids and tissues relevant to criminal investigations, thus linking specific cellular origins to pertinent events. Leveraging the molecular signatures of nucleotide sequences (including DNA, miRNAs, and STRs) with fluorescent nucleic acid probes holds promise for elucidating intricate details of crime scene biology. This exploration delves into the essential intricacies and considerations of RNA-FISH profiling in forensic casework analysis, emphasizing its critical applications in deciphering the complex cellular landscapes encountered in criminal investigations.

PCPT Jeric C. Manalili, RPsy, RPsirene

Chief Psychologist, Philippine National Police Regional Office

Abstract:

THE APPLICATION OF FORENSIC PSYCHOLOGY IN INVESTIGATION

Forensic psychology refers to professional practice by any psychologist working within any sub-discipline of psychology when applying the scientific, technical, or specialized knowledge of psychology to the law to assist in addressing legal, contractual, and administrative matters (APA, 2011). Its primary objective is to assist the criminal justice systems around the world, and its role has exponentially expanded throughout the years. (Demirden, 2023) Accordingly, forensic psychological research has made significant contributions to the development of forensic science, particularly in criminal investigation, interrogation, different interview models, and the development of in-service training for law enforcement officers as well as other justice authorities. On this note, this seminar/workshop aims to define the nature of forensic psychology, its actual role in criminal investigation particularly in criminal profiling, interviewing approaches to suspects and witnesses, and its role in the determination of criminal insanity.

Dr. Niño M. Kabling, RCrim.

Dean, College of Criminal Justice Education and Forensics (CCJEF),

Holy Angel University, Angeles City, Philippines

Abstract:

CAN DIRECTED LIES REVEAL THE TRUTH? AN IN-DEPTH ANALYSIS OF THE DIRECTED LIE SCREENING TEST IN POLYGRAPH EXAMINATION

The Directed Lie Screening Test (DLST) is a crucial component of polygraph examinations, aiming to detect deception through the use of directed, non-threatening lies. This presentation investigates the effectiveness and implications of the DLST in uncovering truth amidst deception. Through a comprehensive analysis, this presentation will explore the theoretical underpinnings of the DLST and its application in contemporary polygraph testing. It examines the cognitive and physiological mechanisms involved in lying and truth-telling, elucidating how directed lies can trigger distinct responses in individuals undergoing polygraph examinations. Furthermore, it will further examine the reliability and validity of the DLST as a deception detection tool, considering its limitations and controversies within forensic and legal contexts. It explores research findings, discussing factors that may influence the accuracy of the DLST and its potential impact on the outcomes of polygraph examinations. Furthermore, it will provide a nuanced understanding of the Directed Lie Screening Test, shedding light on its role, challenges, and implications in the pursuit of truth within the context of polygraph examination.

Dr. Kimberly Anne Plomp

Associate Professor

Head of the Human Osteoarchaeology, Palaeopathology and Evolution (HOPE)

Laboratory, School of Archaeology, University of the Philippines, Diliman

Abstract:

DEVELOPING FORENSIC ANTHROPOLOGY AND ARCHAEOLOGY IN ASIA

Forensic anthropology and archaeology are invaluable fields under the umbrella of forensic sciences. The application of anthropological and archaeological theory and methods in forensic cases provide key information in a forensic investigation, including time-since-death, identification of deceased people, and can aid in the recovery and interpretation of evidence at the scene. It can even be used to identify trauma and disease on bone, information which can help determine the manner and mode of death. Despite their importance however, both anthropology and archaeology are underutilized in many parts of Asia, including India and the Philippines. Due to this, numerous cases that could be solved often remain open. With a new surge of students interested in forensic anthropology and archaeology, now is the ideal time to remedy this and develop a strong, reliable forensic anthropology and archaeology framework and standardized protocols in India and the Philippines, and eventually for all of Asia.

Dr. Charesma Grace K. Lud-Ayen
Dean, School of Criminal Justice and Public Safety
University of Baguio, Philippines

Abstract:

DOMESTIC VIOLENCE PERPETRATORS IN JAIL: A COMPREHENSIVE STUDY

Domestic violence is a pressing issue worldwide, affecting millions of individuals and families. In recent years, researchers have focused on understanding the profiles of perpetrators to devise effective intervention and prevention strategies. The purpose of this study is to gain a comprehensive understanding of the various aspects of domestic violence perpetration among incarcerated people. This study aims to shed light on the psychological, social, and environmental factors that contribute to offenders' involvement in domestic violence. The study employed qualitative data collection techniques. The key informants consisted of eleven (11) male PDLs incarcerated at Baguio City Jail-Male Dormitory with a history of domestic violence offenses and were interviewed using a structured questionnaire. The researchers explained each question to the respondents to provide detailed information that led to the success of the research. The study revealed several key characteristics of domestic violence perpetrators in jail. With the results found, most of the demographic profiles of the key informants are all male-dominated and are presumed to be between the ages of 20- 60. The majority of the critical informants confessed that they had committed domestic violence, and almost all of them have committed Physical and Sexual Abuse, with only one Psychological Abuse. Also, most of the critical informants responded with Economic factors as a motivation for their offenses. As perceived by the responses, most informants claimed to have good relationships with their victims before the offense. Still, it resulted in wrong, broken, and no communication after the incident. Most of them felt guilty and were willing to ask for forgiveness for their actions. All the key informants confessed that they undergo rehabilitative programs provided by the jail. This comprehensive profiling study provides valuable insights into the profiles of domestic violence perpetrators in jail. The findings from the data gathered by the researchers highlight the complex factors that contribute to domestic violence and the importance of Rehabilitation, family, and support programs for perpetrators. These findings can inform future interventions and policies aimed at addressing domestic violence and promoting healthier relationships.

Keywords: Domestic Violence, Domestic Violence Perpetrators, Jail, Comprehensive Study, Rehabilitation Programs.

Dita ÇAPRAZ PhD

Faculty for Forensic, Criminology and Security Science

Department of Criminology

University of Sarajevo, Bosnia and Hercegovina

Abstract:

PSYCHOLOGICAL FACTORS UNDERLYING CRIMINAL BEHAVIOR

This paper explores the psychological factors underlying criminal behavior, aiming to understand the intricate interplay between mental processes and unlawful activities. Drawing on an extensive review of the literature, the study delves into various psychological theories and models that explain why individuals engage in criminal acts. Key factors examined include personality traits, mental health disorders, cognitive distortions, and environmental influences. The paper also considers the role of early childhood experiences, such as trauma and family dynamics, in shaping criminal tendencies. By integrating insights from psychology, criminology, and sociology, this work seeks to provide a comprehensive understanding of the psychological underpinnings of criminal behavior, offering valuable implications for prevention, intervention, and rehabilitation strategies. Furthermore, the paper highlights the significance of neurobiological factors, including brain structure and function, in predisposing individuals to criminal activity. The interaction between genetic predispositions and environmental triggers is explored to elucidate how certain individuals develop antisocial behavior patterns. Special attention is given to the impact of substance abuse, stress, and social influences on the likelihood of engaging in criminal conduct. Ultimately, this paper aims to contribute to the development of more effective criminal justice policies by promoting a deeper understanding of the psychological roots of criminal behavior. By addressing the mental health needs of offenders and implementing evidence-based interventions, society can better manage and reduce crime rates, enhancing overall public safety and wellbeing.

Keywords: criminal behavior, psychological factors, mental health disorders, cognitive distortions, personality traits

Dr. GK Goswami

Additional Director General of Police

Founding Director, UPSIFS Lucknow, Uttar Pradesh

Abstract:

LAW AND FORENSIC JUSTICE: AN INTERTWINED PARADIGM

Justice is the fulcrum for a democratic and peace-loving society. The trilogy of ‘Justice’, ‘Truth’ and ‘Evidence’ is central to the criminal justice system (CJS). Truth behind a fact is essential for delivering justice, but both justice and truth are abstract and intangible concepts. Evidence provides tangibility to the truth behind a fact, making it indispensable for judge to deliver justice. Ocular testimony is generally considered primary evidence, but oral evidence is susceptible to challenges such as personal vendetta, misrepresentation of the fact, hostility etc. which can lead to miscarriage of justice. Forensic evidence, with its scientific validation, neutrality and reproducibility, has established itself as a credible means of corroboration facts over time. Scientific aid in investigation constitutes forensic justice. Recently, the Indian Parliament has enacted three major criminal laws, repealing the archaic laws of British origin. Enforced from July 1, 2024, the new laws have adopted Indian cultural ethos, marking a paradigm shift from ‘punishment’ to ‘justice’. Forensic evidence is considered expert opinion, but the term ‘expert’ has not defined under section 45 of the old Indian Evidence Act, 1872 nor in section 39 of the Bharatiya Sakshya Adhiniyam, 2023 leading to interpretational conundrums. In the State of Himachal Pradesh v. Jai Lal (1999), the Supreme Court of India explained the phrase ‘specially skilled’ as mentioned in the above stated sections 45 and 39, determining it based on education and experience in the relevant domain. Section 176(3) of the Bharatiya Nagarik Suraksha Sanhita, 2023 mandates that a forensic expert must visit the crime scene for offences punishable for seven years or more. This legal provision reflects faith of the law makers in scientific investigation. However, it necessitates the development of forensic facilities, including well-equipped laboratories and trained man power, to meet emerging needs. Consequently, budding forensic experts now have ample job opportunities in India. The admissibility of forensic evidence depends upon its reliability and validity. The integrity of samples is vital, necessitating strict adherence to the chain of custody protocol. Accreditation of laboratory procedures, quality assessment (QA) and quality control (QC) protocols are essential parameters for the admissibility of expert opinions. Translating expert opinion into credible evidence is yet another challenge. Training and capacity building of all stakeholders of CJS are immediate needs. It is further suggested that India must introduce a regulatory body (Ombudsman) to oversee the forensic services, similar to the Texas Forensic Science Commission (TFSC) or the Forensic Science Regulator (FSR) of United Kingdom. There are several vital issues and challenges, that require further deliberation.

Dr. Rajesh Verma

Rtd. Directorate of Forensic Services, Shimla, Himachal Pradesh

Abstract:

THE PARADIGM SHIFT IN FORENSIC VOICE COMPARISON EVALUATION

Forensic voice comparison is the comparison of one or more audio recordings of the voice of a known speaker, with an audio recording of the voice of a speaker of questioned identity for the purpose of presenting expert testimony in court. Typically the known speaker is a suspect/defendant and the questioned speaker an offender. There are 4 different approaches used for the purpose. While the auditory and the spectrographic approaches are intrinsically qualitative; the acoustic phonetic and human supervised automatic approaches can result in quantitative figures. A paradigm shift is underway in various fields of forensic science. This is a metaphor highlighting the transformation involved in moving from a pre-science to an empirically grounded science. The paradigm shift has already occurred in DNA profile comparison, and that other forensic-comparison sciences are now shifting towards the new paradigm. Forensic voice comparison is one branch of forensic science in which this shift is now well underway. The opinions are expressed in terms of the “likelihood ratios”. The likelihood ratio approach has been termed as the ‘logically correct approach’. This talk will discuss how the acoustics phonetic and the automatics approaches are suited to the new paradigm of evidence interpretation.

Dr. Rajinder Singh Chandel

Prof. & Former Head, Department of Forensic Science

Punjabi University, Patiala

Abstract:

ATR-FTIR SPECTROSCOPY: A NOVEL APPROACH IN WILDLIFE FORENSICS

Wildlife crime is a major cause of concern across the globe as it poses serious threat to the conservation of biodiversity and environment. In addition, huge amount of money involved in illegal wildlife trade is being used to fuel other forms of organized crime such as human trafficking, terrorist activities, drugs, and firearms smuggling further deepens the concerns to take immediate steps to arrest this form of crime. The Convention on International Trade in Endangered Species of wild flora and fauna (CITES) and the Wildlife (Protection) Act, 1972 in India provide protection to the wildlife and strictly prohibits any form of trade in protected wild flora and fauna. Wildlife forensics plays a pivotal role in the successful implementation of these laws by providing aid in investigation and correct identification the species from different evidentiary materials and body parts/ products encountered in such cases. Various techniques such as morphological, anatomical, protein, and DNA based analysis have been used for this purpose with some inherent advantages and disadvantages over each other. Recently, ATR FT-IR spectroscopy in combination with chemometrics has also been reported which offers a non-destructive, rapid, facile and on the spot analysis of wildlife materials in an objective and eco-friendly manner with minimal sample preparation. In this talk, applications, advancements, prospects, and limitations of this technique will be discussed.

Keywords: Wildlife forensics, wildlife crime, species identification, ATR-FTIR spectroscopy.

Dr. Ankit Srivastava

Associate Professor & Director

Centre for Studies & Research in Forensic Sciences

The West Bengal National University of Juridical Sciences, Kolkata

Abstract:

**SCIENCE IN THE COURTROOM: ADVANCES IN FORENSIC EVIDENCE
ADMISSIBILITY**

The integration of scientific advancements into legal proceedings has transformed the landscape of forensic evidence admissibility in courtrooms worldwide. This abstract explores the evolving role of science in enhancing the reliability and credibility of forensic evidence within judicial systems. Forensic evidence, ranging from DNA analysis to digital forensics, has become pivotal in establishing facts, linking suspects to crimes, and determining guilt or innocence. However, challenges persist regarding the admissibility of such evidence, particularly concerning its scientific validity, reliability, and the interpretation of complex findings. This present topic examines recent advances in forensic science that have influenced the admissibility criteria for various types of evidence. It discusses the methodologies and technologies that have improved the accuracy and objectivity of forensic analysis, including advancements in DNA profiling techniques, the use of statistical models in fingerprint analysis, and the integration of artificial intelligence in digital forensics. Moreover, the topic addresses the critical role of expert testimony in educating judges and juries about the scientific basis of forensic conclusions. It explores the standards and guidelines governing the admissibility of expert testimony, emphasizing the need for transparency, proficiency, and ethical conduct among forensic experts. Furthermore, the paper highlights international perspectives on forensic evidence admissibility, showcasing best practices and regulatory frameworks from different jurisdictions. It examines case studies and legal precedents that illustrate the application of scientific principles in determining the admissibility of forensic evidence. In conclusion, the abstract underscores the importance of maintaining high standards of scientific rigor and ethical conduct in the admissibility of forensic evidence. It advocates for continued collaboration between forensic scientists, legal professionals, and policymakers to enhance the fairness, reliability, and transparency of judicial processes worldwide.

Keywords: Forensic Evidence, Admissibility criteria, Scientific advancements, Expert testimony, legal standards

Dr. Ritesh Shukla

Associate Professor, School of Arts and Sciences

Ahmedabad University, Gujarat

Abstract:

**CUTTING EDGE RESEARCH IN THE FIELD OF FORENSIC NANOTECHNOLOGY:
PREVENTIVE AND INVESTIGATIVE APPROACH**

Forensic nanotechnology represents a convergence of nanotechnology and forensic science, leveraging advanced techniques to enhance both preventive and investigative aspects of criminal justice. Forensic nanotechnology aims to expedite the process of forensic investigation via both preventive and investigative approaches. By advancing nanomaterial characterization, understanding environmental impacts, and addressing ethical considerations, researchers ensure the responsible integration of nanotechnology into forensic practices. Meanwhile, innovations in sensing, imaging, and data analytics improve the efficiency, accuracy, and reliability of forensic investigations. This holistic approach contributes to more effective crime prevention, detection, and justice delivery, ultimately enhancing public safety and confidence in the criminal justice system. In conclusion, cutting-edge research in forensic nanotechnology represents a transformative approach that combines scientific rigor with ethical responsibility, shaping the future of forensic science towards more effective crime-solving and justice administration.

Dr. Rajesh Kumar

Head, Department of Forensic Science

Government Institute of Forensic Science, Aurangabad, Maharashtra

Abstract:

FORENSIC ANALYSIS: PERFORMANCE OF HUMANS VERSUS MACHINES

It has been observed in various forensic reports that forensic analysis by an expert is not free from biases and errors, especially where opinion matters. On the other hand, artificial intelligence (AI) has been proven to be useful in many applications, including forensics. This talk will highlight the comparison between the performance of humans and technological solutions based on artificial intelligence and machine learning. It will also throw some light on the suitability of newly invented AI tools that are being used in forensic analysis.

Keywords: Artificial intelligence, expert, forensic analysis, bias.

Dr. Surbhi Mathur

Associate Professor & Head of Multimedia Forensics Department

School of Forensic Science, National Forensic Sciences University, Gujarat

Abstract:

FAKING REALITY: DEEPFAKE DILEMMAS IN MODERN FORENSICS

"Deepfakes are tools of Deception and Distrust in the Digital Era posing a major threat to our digital integrity, blurring the line between reality and illusion, and challenging our ability to discern truth in an age of sophisticated deception." The simulation of human intelligence in machines have bestowed machines with the cognitive power to think, learn and make decisions autonomously making them artificially intelligent with increased efficiency and performance. The chief components of AI namely, "Machine Learning, Natural Language Processing & Deep Learning", have become the source key to unlock futuristic technological developments holding the potential to automate and streamline complex tasks with unmatched proficiency and skill. The Deepfakes awash or inundate the society serving as an emergent threat in spreading misinformation resulting in distrust and dilemma among people. Deepfakes are synthetic media that are generated using AI (deep learning), the images and videos produced as a result look remarkably realistic, often making it challenging to distinguish them from genuine content. Due to the ground breaking capabilities of the deepfake technology, it has become a preferred technology for the criminals to manipulate and misuse the same. The rise in the use of deepfakes for deception has caused profound implications on society, it is popularly used as a means to spread fake news, influence elections/political matters of the country, create pornographic content and fabricate convincingly fake evidence. According to a survey released by a leading cybersecurity firm McAfee, over 75% of Indians who are active online have come across deepfake content in the past year (2023). Additionally, the survey revealed that at least 38% of these respondents have encountered a deepfake scam during the same period. Advanced AI models that are employed for creating the deepfake content has complicated forensic investigations making it taxing for the experts to detect such content. With the ever-evolving technology the methods involved in generation of Deepfakes are becoming more sophisticated such that the existing detection techniques that rely on various visual and scientific anomalies have become unsuccessful for detection. Many criminals have also targeted the said technology for impersonating notable individuals to commit scams and hoaxes. However, existing laws can be applied to address the misuse of this technology, such as those related to copyright infringement, defamation, and cyber-crimes. Deepfake technology has also made it difficult for the experts in establishing and verifying the veracity of the original source of the media. The integrity of such evidences remains a huge question, overall affecting its admissibility in the court of law. The forensic experts have to conduct thorough research to scour such evidences, as contemporary tools and literature are limited regarding the same. The underlying technology that is involved in its generation is becoming advanced day by day, which has created a significant gap in scientific techniques available and detection techniques. Collaboration between technologists, law enforcement, and policymakers can serve incremental to address the deepfake threat.

Dr. Jayasankar P.Pillai BDS,MSc.[FOdont.]

Dept. of Oral Pathology, (Forensic Odontology and Dental Anthropology Unit)

Govt. Dental College and Hospital, Ahmedabad

Abstract:

“TEETH IN FIRE”- ROLE IN FORENSIC HUMAN IDENTIFICATION

Teeth are the strongest human tissue and hence they are the most common and reliable hard tissue element for forensic human identification. The teeth, the metallic restorations and even the prostheses are highly resistant to high temperatures. The colour changes taking place in the teeth while burning is also an indication of the physical nature of fire, like the temperature at which the body was burning. Hence understanding the dimensional and the morphological changes in teeth following burning can be useful in evaluating the victim's identity. Several incidents of fatal fire accidents are witnessed in India. Though the prime objective in such situations is to rescue the injured and providing them the medical attention, the identification of the charred bodies the proper disposal in a dignified manner also, is important. According to the Interpol's guidelines, the scientific methods of identification relies on Fingerprints, DNA and most importantly the teeth in fire cases. However, in India there is limited awareness about teeth's role among the stakeholders in the disaster management team. Hence in many such fire accidents, only the DNA was given consideration, bypassing the consideration of teeth. In one of the incidents, the author, on humanitarian service, could make a positive identification of two victims using the dental evidence within 3 hours of examination. The positive identification through DNA in the same case took more than one week. Hence the author feels that incorporation of the dental evidence in disaster victim identification, especially the fire victim identification may prove useful, reliable and less time consuming to conclude a positive identification. The presentation will highlight the role of teeth and /or dental evidence in identification of the charred human remains.

Keywords: Disaster Victim Identification , Teeth , Dental, Fire, Interpol DVI Guidelines.

Atty. Aloi Renz P. Santos

Attorney IV, Commission on Human Rights- Region III

Professor, School of Law, Tarlac State University, Philippines

Abstract:

ROLE OF FORENSICS IN HUMAN RIGHTS INVESTIGATIONS: ENSURING ACCOUNTABILITY AND UPHOLDING JUSTICE

This presentation focuses on the crucial role of forensics in investigating human rights violations or abuses, emphasizing its legal significance in uncovering the truth, delivering justice, and promoting accountability. By analyzing legal cases and exploring the diverse range of forensic techniques employed, this presentation seeks to underscore the profound impact of forensics in safeguarding human rights and ensuring the rule of law. This presentation commences by providing an in-depth overview of human rights violations/ abuses in the Philippines and the challenges faced in investigating them. It then delves into the pivotal role of forensics in these investigations, explaining how it serves as a robust tool to establish facts, corroborate evidence, and refute false narratives in a legally admissible manner. Furthermore, this presentation aims to inspire individuals, legal professionals and institutions to prioritize and invest in forensic capabilities. Strengthening forensic analysis in human rights investigations is essential for upholding the rule of law and protecting human rights. It also highlights the role of the Commission on Human Rights of the Philippines in promoting the use of forensic science in investigations and advocating for the rights of the victim.

Keywords: Forensics, Human rights investigations, Human rights violations, Accountability, Justice, Evidence, Dignity.

Dr. Mary Jane Louise Bolunia
Director, Department of Anthropology
National Museum of the Philippines, Manila

Abstract:

FORENSIC SCIENCE, ARCHAEOLOGY AND HERITAGE

Forensic science and heritage might look as two incompatible disciplines at a glance. In reality they can be harmonized through archaeology. Archaeological methods and techniques allow for a systematic work that results in the protection and preservation of the heritage of the people and the community without sacrificing scientific analysis. Heritage is patrimony. It is the inheritance of a group of people that serves to unify them beyond what is physical as it is both tangible and intangible. Although, only the tangible is given much attention and importance while the latter remain unrecognized. Forensic science, on the other hand, engages in solving crimes and related cases. Evidences that might be presented in a court of law or other agencies that have a need for it should not be compromised for heritage considerations. Archaeologists can always assist in the search and location of sites, doing systematic reconnaissance and survey, excavation and maintaining full documentation of all recovered human remains, associated objects and artifacts including environmental characteristics like soil, terrain, landform, etc. It is in the conduct of forensic analysis that archaeologists become very effective in assisting both the forensic specialists and the heritage workers as they meticulously present documented evidence for both parties. Protocols are followed to lead to fruitful endeavors.

Atty. Jewel O. Dela Cruz, LL.M.

Lecturer, Tarlac State University, School of Law Faculty

Country Program Manager, Philippines

Abstract:

CHILDREN, SCIENCE, AND THE LAW: A LEGAL ANALYSIS OF FORENSIC SCIENCE IN CASES INVOLVING CHILDREN

There is growing digital dependence felt in different domains including the legal system (Sammons, 2012). We have even gone past the era when digital forensics only concerned personal computers; now, digital forensic investigation involves a wide variety of devices including smart phones, CCTV, and even those in third party devices like those operated by internet service providers (Horsman, 2022; Subramaniam, 2018). There is also a growing tendency to capture evidence in transit as data moves between network devices and voice call intercepts (with lawful authority to do so) (Subramaniam, 2018). These advances in technology and the field of digital forensics have trailblazed in the legal system. Such advantages have been felt particularly for victims of online child sexual exploitation. Before, it was close to impossible to try a case against a child perpetrator without the child providing her testimony. Now, convictions are secured on criminal cases of internet child abuse even without a victim retelling the story because the devices instead may serve as the ‘star witness’. The results of digital forensic examination has been so comprehensive that child exploitation can be proven using the data extracted including image and video files of child abuse, chat logs of manipulation and grooming, internet browser history of visited restricted sites, and email traces of distributed child exploitative materials. It is acknowledged though that digital forensics is far from reaching the gold standard of a forensic science. At the front line is the recurring question of scholars on the scientific base of the method. Of equal importance are questions of inconsistency, challenge of independence, and the legal and ethical issues of privacy. But, at least for purposes of this paper, what is undeniable is that digital forensics is making a difference in the lives of rescued victims of online sexual exploitation. On one end are the children rescued in one country because of the devices examined in another, and digital forensics played a critical role in that narrative. On the other end are the accused and others affected. The issues of scientific basis, inconsistency, and privacy are just as critical and should be addressed.

Dr. Glenn Luansing

Professor and Research Director of Law, University of Santo Tomas,

Graduate School of Law, Philippines

Abstract:

EMERGING TRENDS IN THE GATHERING AND PRESERVATION OF FORENSIC EVIDENCE AMONG ALLIED HEALTH WORKERS

This is an interdisciplinary approach in presenting the roles among nurses in relation with gathering, documenting, handling, and safekeeping of forensic related evidence among patients' cases involving sexual abuse, as sexual abuse is a universal concern. Nurses play a vital role in working with other professionals involved in the criminal justice system. Nurses, being the frontline officers and assess admitted cases of sexual abuses, work alongside with law enforcement to gather and safekeep evidence in cases of sexual assault and other related forms of violence. Through a comprehensive review of related cases and available literatures, the study highlights the critical role of nurses in forensic evidence gathering to ensure legal victory among abused patients and to secure higher convictions of assailants. Sexual abuse cases admitted in medical institutions are often neglected circumstances that leads to a compromised prosecution of said offenses. In advanced countries, a field of specialization is called as Sexual Assault Nurse Examiner (SANE), where trained forensic nurses play a pivotal role in history taking, evidence gathering and documentation of cases, resulting in timely examination of sexual assault victims, employing the skills with care and humanitarian approach. Due to toxic work environment inside most hospitals among developing countries, like the Philippines, emergency rooms are swamped with various medical cases, that tends to deprive abuse victims of proper care, guidance, and patent delays in the examination of survivors. In actual scenarios involving admission of sexual abuse survivors, seeking a safe environment is a primordial concern among nurses in any institution. Upon ensuring the survivors' safety, nurses must accurately record or document all injuries observed or assessed from an abused patient to ensure its purpose as future legal evidence in court. During the stage of confinement, nurses must continue medicolegal records maintenance, evidence gathering, collection of important trace evidence, sample preservation, as well as preservation of mental and physical well -beings of victims. Hence, the important roles of nurses in abuse cases will lead to a prompt forensic examination of sexual assault survivors and evidence preservation leading to success in the conviction of sexual aggressors. In fact, their direct participation can unload responsibilities among other health care professionals inside the institution, while the former handles these cases with expertise, employing humanitarian care.

Dr. Atty. Ariel D. Valones

Cardiologist Consultant

Philippine Heart Center, Manila Medical Hospital, Manila Doctors Hospital

Abstract:

ARTIFICIAL INTELLIGENCE AND THE METAVERSE OF FORENSIC MEDICINE: THE PANDORA'S BOX OF THE FUTURE COURT ROOM EVIDENTIARY PROCEDURE

Artificial intelligence (AI) is the most innovative technology in contemporary society in this hyperlinked world nowadays as it intersects with the evolution of the criminal justice system. In the world of the metaverse, medicine, and the legal field have been the industries that are undeniably shaped by AI technology due to the various medical and patient-facing AI apps already in use in the medical field, such as but not limited to toxicology, imaging and electronic medical records (EMR), detection of pathological changes, new drug discovery, laboratory diagnosis and treatment, preventive and precision medicine, forensic comprehensive data analysis, speeding up processes, data storage and access to health records, and multimodal capabilities. However, there are ethical and legal ramifications for Artificial Intelligence against the backdrop of the existing legal and evidentiary framework on courtroom procedures since the present structures are largely not yet fit to deal with the challenges AI technologies pose. The management and interpretation of forensic expert data and testimony, forensic reports, the usage of forensic science in the framing of forensic expert opinions, and the admissibility and relevancy of evidentiary standards are the complexities that beset the courtroom procedure in dissecting the probative value of the forensic, medical, and legal evidence as the criminal justice system engages with the metaverse world. In this paper, the author will discuss the present and future state of Artificial Intelligence and the Metaverse of forensic medicine in the realm of the criminal justice system. The author recommends that responding to the challenges in the courtroom evidentiary procedure is more than equipping the judges, law enforcement officers, and public prosecutors with the competency to render judgment but a legal and judicial reform on having ethical and impartial court-appointed experts in forensic medicine to assist courts in adjudicating competing claims on evidence's admissibility and relevancy.

Atty. Enrico Miguel Dela Rama Dizon

Tarlac State University

Abstract:

POSTAL CODES: PROBLEM AREAS IN THE ADMISSION OF SOCIAL MEDIA POSTS AS EVIDENCE

As technological developments challenge traditional societal conceptions of privacy, the right to privacy has evolved from a physical, temporal right primarily tied to property rights, to becoming an independent right encompassing both persons and property. In recent years, privacy has once again been challenged by the rise of social media, which presents a whole new lacuna of considerations engendered by the novel, sui generis nature of the internet. Case law and jurisprudence in the Philippines has yet to sufficiently address these issues, with leading cases on the subject formulating problematic standards for determining whether an internet user has exhibited a reasonable expectation of privacy online. This presents issues as to how social media posts can be exploited in a legal context, especially regarding their admission into evidence before trial courts. This presentation aims to shed light on the gaps created by the inadequate jurisprudential framework governing social media privacy in the Philippines, and the role forensics plays in potentially addressing the gaps involved.

Atty. Cristina Elaine D. Mangrobang LLM

Master of Laws

San Sebastian College-Recoletos Manila/Tarlac State University Consortium

Abstract:

FORENSIC SCIENCE AS INTRINSIC COMPONENT IN THE ADMINISTRATION OF JUSTICE IN THE PHILIPPINES: A CRITICAL ANALYSIS

Forensic science uses scientific methods or expertise to investigate crimes or examine evidence that might be presented in a court of law. It applies a broad spectrum of sciences and technologies to investigate and establish facts and to answer questions of interest to the legal system, often concerning a crime or civil action. In this study, the researcher would like to present the importance of forensic science as a method of identifying the guilt of the perpetrators and the innocence of those who are accused of crimes to be considered an intrinsic component in the administration of justice in the Philippines. Likewise, the study identified recommendations, including amendments to existing laws and integrating applicable laws and policies into the current Philippine legislation.

Ma Josefina Jacala

Vice President Legal Materials, Central Books, Philippines

Abstract:

DETECTING PLAGIARISM: A COMPREHENSIVE GUIDE

The general definition of Plagiarism is the act of using sources and passing them off as one's own, either intentionally or unintentionally, for whatever purposes. The Oxford University defines it as: "Presenting work or ideas from another source as your own, with or without consent of the original author, by incorporating it into your work without full acknowledgement. All published and unpublished material, whether in manuscript, printed or electronic form, is covered under this definition, as is the use of material generated wholly or in part through use of artificial intelligence (save when use of AI for assessment has received prior authorisation e.g. as a reasonable adjustment for a student's disability). Plagiarism can also include re-using your own work without citation. Under the regulations for examinations, intentional or reckless plagiarism is a disciplinary offence." Plagiarism is an issue recognized in various professional and creative fields— academia, journalism, all forms of art and intellectual property where one's right to his or her own works is compromised. This comprehensive guide intends to explore the following topics: (1) Understanding Plagiarism, (2) Signs of Plagiarism, (3) Tools for Detection, (4) Best Practices; and (5) Addressing Plagiarism. Understanding what constitutes as Plagiarism also allows one to identify the indications of a plagiarized work such as: inconsistent writing styles, unusual formatting and out-of-place information. The use of AI in generating texts from various sources and modifying the words used in order to paraphrase them is another form of Plagiarism prevalent in today's world. This discourse also includes the challenges inherent in plagiarism detection, including the detection of disguised plagiarism, collusion, and contract cheating. As well as insights into navigating these complexities and enhancing the efficacy of detection mechanisms. It tackles the role of education and awareness in preventing plagiarism, emphasizing the importance of fostering a culture of honesty and integrity. Strategies for promoting originality and responsible citation practices are delineated, along with recommendations for integrating plagiarism detection. In conclusion, this guide serves as a comprehensive resource for educators, researchers, and students alike, equipping them with the knowledge and tools necessary to uphold the principles of academic integrity and combat plagiarism effectively in scholarly endeavors.

Atty. Bernadette P. Baylon, J.D.

Lawyer, PLM Graduate School of Law, Philippines

Abstract:

PHILIPPINES CRIMINAL JUSTICE SYSTEM: PROBLEM AREAS AND CHALLENGES

In the Philippines, there are areas and challenges that must be given attention by the Legislative and Judiciary [the Supreme Court of the Philippines]. Some of the problem areas in the prosecution of crimes committed in the country are as follows: 1. There is poor coordination between the law enforcer and the prosecution in prosecuting offenses. There is a problem in evidence gathering and case building. There is case congestion in courts located in rural areas due to a lack of courts and judges or court personnel. The quantum of proof of the prosecution is the lowest form among the quantum of proof required in the prosecution of offenses; as such, during preliminary investigation under the 2000 Rules on Criminal Procedure, the quantum of proof relied upon by the prosecution is probable cause. There is a problem in complaint filing because of the lack of proper training in the preparation of the complaint affidavits by the law enforcers. Many cases are dismissed due to technicalities. Lack of efficiency and promptness, which causes delays in the prosecution of offenses; and 6. The slow phase in the reforms needed to revise or amend the criminal laws and court procedures in the Philippines. The Congress has played a greater part in these reforms by enacting laws as remedies for the above-mentioned problem areas and challenges, as well as by creating more courts in rural areas to avoid congestion of cases. Further, it will help the accused's constitutional rights to a speedy trial if court dockets are not congested. In the prosecution of offenses, pursuant to DC No. 18, 18-A, 020, the Department of Justice has increased the quantum of proof from probable cause to prima facie evidence, which will help the prosecution's determination of a prima facie case. Prima facie evidence is a quantum of proof higher than probable cause, which is only based on a reasonable belief. Also, the introduction of forensic science as one of the modes of prosecuting heinous crimes like murder, homicide, and rape, among others, is very important in determining the real perpetrator. This can help the Philippine Justice System ensure that only those who committed the crimes will be punished.

Marilet Santos Layug

Managing Partner, Santos-Layug Law Offices

Professor, Tarlac State University, Philippines

Abstract:

BEYOND REASONABLE DOUBT: INTEGRATION OF FORENSIC EVIDENCE IN THE RULES OF COURT

The researcher asked Dr. Raquel Fortun one Friday morning during her lecture at Holy Angel University in April 2024, if she says Forensic Evidence does not necessarily lead to the identification of the accused, what is the value of Forensic Evidence in courts of law. She quipped, “It states the truth. It is science, there is no bias.” The purpose of this research is mainly to avail of the advances in forensic science in identifying the accused in criminal cases. Historical, descriptive and normative legal research methods were used to show the origins of forensics, make the technical world of forensics as understandable as possible to non-scientists and connect them to the laws and rules punishing crimes. Wrong convictions based on positive identification destroyed lives in the US and they discovered the wrong convictions because of forensic evidence made available post-conviction. The result of the research shows the need to have clear guidelines or rules to govern the presentation, admission and preservation of forensic evidence and the necessity for all institutions involved in the pursuit of justice to have high standards of procedure and excellence in their fields to be reliable in truth-telling before the courts and in case resolution. The hope of this research is to pave the way for the promulgation and integration of the Rules on Forensic Evidence in the Philippines.

Emanuel C. Manahan, RCrim, MCJE

Criminology, Program Coordinator

Holy Angel University, Philippines

Abstract:

REVOLUTIONIZING FORENSIC BALLISTICS: CUTTING-EDGE TECHNOLOGIES AND THEIR IMPACT

Forensic ballistics, essential to criminal investigations, has been transformed by recent technological advancements, enhancing precision, speed, and reliability. Automation and artificial intelligence (AI) have revolutionized ballistic fingerprint analysis. AI-driven software quickly and accurately compares large databases of ballistic evidence, identifying matches that may be overlooked by human analysts. This increases the efficiency of linking firearms to crime scenes, facilitating the resolution of complex cases. Innovations in trace evidence analysis, particularly in the examination of gunshot residues (GSR), have also advanced. Techniques like Raman spectroscopy and energy-dispersive X-ray spectroscopy (EDX) offer sensitive and specific analyses of GSR particles, revealing detailed chemical compositions and differentiating residues from various ammunition types. Portable forensic equipment now enables on-site ballistics investigations. These advanced devices allow for rapid preliminary assessments at crime scenes, ensuring critical evidence is documented and preserved, which expedites further laboratory analysis. The use of blockchain technology in managing the chain of custody enhances the integrity and traceability of ballistic evidence. Blockchain provides a secure and immutable record of evidence handling, reducing the risk of tampering or mismanagement and bolstering the reliability of forensic evidence. These advancements in forensic ballistics technology provide law enforcement with powerful tools for investigating and solving firearm-related crimes more effectively, thereby strengthening the criminal justice system and ensuring accurate, reliable outcomes in the pursuit of justice.

Atty. Mark Anthony N. Manuel, LPT

Managing Partner

MN Manuel Law Offices, Philippines

Abstract:

AI IN FORENSIC SCIENCE: APPLICATIONS, OPPORTUNITIES AND CHALLENGES

The rise of Artificial Intelligence (AI) has revolutionized the traditional methods in forensic science and investigation. It offers seemingly limitless opportunities for efficiency, accuracy, and innovation. This paper explores the multifaceted integration of AI technologies in forensic practices, highlighting their application, opportunities and challenges in crime scene analysis and evidence interpretation. Forensic science traditionally relies on meticulous manual labor and subjective interpretations that may lead to potential biases and limitations. However, AI-powered systems have emerged as invaluable tools in augmenting human capabilities and addressing these challenges. AI enables automated processing and analysis of vast amounts of forensic data, expediting investigations and enhancing decision-making processes. One of the primary applications of AI in forensic science lies in crime scene analysis. By leveraging computer vision and pattern recognition techniques, AI assists in the identification and reconstruction of crime scenes. This facilitates the collection of crucial evidence and the determination of key factors. Furthermore, AI excels in evidence interpretation, particularly in complex cases involving fingerprint identification and ballistics, among others. These systems can swiftly analyze intricate patterns and correlations within forensic evidence. Moreover, AI-driven facial recognition technology has emerged as a powerful tool in suspect identification and tracking. By analyzing facial features and comparing them with extensive databases, AI algorithms assist law enforcement agencies in swiftly identifying individuals involved in criminal activities. However, the integration of AI in forensic science also presents challenges, including data privacy concerns, algorithm biases, and ethical considerations. This paper discusses these challenges while emphasizing the need for robust regulations and ethical guidelines to ensure the responsible and effective deployment of AI in forensic practices. In conclusion, the convergence of AI and forensic science holds immense promise in advancing investigative capabilities, enhancing accuracy, and expediting justice delivery. By leveraging AI technologies responsibly, forensic scientists, investigators and stakeholders can unlock new avenues for uncovering truth and serving the cause of justice in a rapidly evolving digital landscape.

Dr. Mildred D. Martinez-Tria

Founder, Martinez-Tria Lawyers

Maritime Law Trainer and Law Professor, Philippines

Abstract:

SHATTERING THE GLASS CEILING: WOMEN IN FORENSIC SCIENCE

The number of women interested in forensic science is steadily growing and interestingly, it is the only field in Science, Technology, Engineering and Mathematics (STEM) discipline that has more women than men. Forensic scientist as an occupation requires high specialization and many responsibilities and indeed poses a great challenge especially for women aiming for the leadership role. This study delves into the gender inequality in forensic science leadership especially on the challenges women face in breaking the glass ceiling and accessing the top leadership roles within the field. It explores the factors that contribute to the underrepresentation of women in leadership roles and highlighting strategies in promoting gender diversity and inclusivity within the profession. It also includes success stories of women in the field of forensic science who have navigated the challenges of ascending to leadership status. The perpetuation of gender disparities within forensic science not only impacts the career trajectories of women but it has broader implications for the diversity, innovation, and effectiveness in the field of forensic science. This topic aims to offer insights, recommendations, and actionable steps towards a more inclusive and equitable leadership landscape in forensic science.

Key words: Inequality, Gender Disparity, Glass Ceiling, Forensic Science.

Mykedox Knoel T. Cuchapin

Associate Dean, School of Law

Tarlac State University, Tarlac, Philippines

Abstract:

ESTABLISHING LEGAL IDENTITY, CIVIL, AND HUMAN RIGHTS THRU FORENSIC UNDER THE LENS OF INTERNATIONAL LAW

Forensic DNA testing is a powerful tool to determine the biological relationship between individuals, especially in cases involving the identity of a child. This document examines the legal implications of forensic DNA testing in child identity cases in the Philippines, in the United States. It will also discuss principles of international law that recognizes the right of every child to establish his or her filiation. The paper also discusses the benefits and challenges of forensic DNA testing in resolving paternity disputes, adoption issues, inheritance claims, and other legal matters that affect the rights and welfare of the child. The document concludes that forensic DNA testing is an essential and reliable method to establish the identity of the child and to avoid future legal problems that may arise from uncertain or contested filiation.

Archie Lawrence Geneta

Assistant Professor, Department of Behavioral Sciences

College of Arts and Sciences, University of the Philippines Manila

Abstract:

ASSESSMENT OF PSYCHOLOGICAL INCAPACITY IN THE PHILIPPINES: SHARING OF PERSONAL PRACTICE WITH CLIENTS WHO HAVE UNDERGONE ANNULMENT

The legal system in the Philippines particularly Article 36 of the Family Code provides that a marriage may be declared void on the ground of psychological incapacity. While psychological and/or medical examination by an expert witness of the spouse concerned is no longer required as courts may rely on the totality of evidence to sustain a finding of psychological incapacity, the Philippine courts still find the testimony of an expert witness admissible in the granting of annulment or determination of criminal liability of either spouse. As a practicing psychologist in the Philippines, I present 2 of my recent cases where my clients have to be evaluated in answering the forensic question: Given the alleged marital abuse committed by their respective spouses, how did such abuse affect their psychological states and behavioral dispositions? In my presentation, I will demonstrate in reasonable detail how: (1) available psychological tests in the Philippines may aid in the determination of psychological abuse; (2) the nuances of conducting assessment procedures, like the ones conducted for annulment, given that the Philippines is historically patriarchal and religious; and (3) above and beyond assessment, treatment considerations are advanced given that most of those who seek for annulment on the basis of abuse are psychologically embattled.

Raymielle Christie Romero Magcalas

Supervising Lawyer

Tarlac State University/Marc Andrei Marcos Legal Aid Center

Abstract:

HOLDING OUT FOR A HERO: FORENSIC SCIENCE AND THE RIGHTS OF CHILDREN WHO ARE VICTIMS OF HUMAN RIGHTS VIOLATIONS

It is true that the Supreme Court recognizes DNA evidence to help in arriving at a decision, but it is only supplementary and not a mandatory requirement to arrive at a sound judgment. The Philippines does not have a legislation which systematizes forensic evidence collection, preservation, and utilization. Memory is one of the most fragile and most error-filled source of testimony. It can change based on context, influence, and time. Yet, testimonies are relied upon to convict a person with heinous crimes, and worse, it is relied upon to justify death. Weak reliance to forensic evidence, unclear system of collection, preservation, and utilization of such pieces of evidence, and the over-reliance to testimonies have brought about an age of evidence based on subjective perception. This calls for a discussion on the human rights implications on children of (1) failing to establish a systemic and reliable forensic evidence collection, preservation, and utilization; (2) wrongful convictions relying on testimonial evidence in a science heavy case; and (3) death and convictions of a breadwinner in a family with children. The creation of legislation, the execution of legal decisions, and the issuance of policies must consider that forensic evidence protects children's safety and welfare, together with the rest of the public and to do so requires the better appreciation and utilization of forensic science through accumulation of funds and procurement of available technologies. It is not enough to view forensic science and evidence in a case-to-case basis. It requires looking into a larger picture of the effects and who are affected.

Dr. Allesandra Fay V. Albarico

Associate Professor, University of Santo Tomas

Graduate School of Law Espana, Manila, Philippines

Abstract:

ACHIEVING ARBITRAL JUSTICE IN INTERNATIONAL COMMERCIAL ARBITRATION THROUGH FORENSIC SCIENCE: A PHILIPPINE EXPERIENCE SO FAR

As companies venture into foreign markets, they may come across legal conflicts stemming from variances in laws, regulations, business customs, linguistic and cultural barriers, and misunderstandings. Disputes are inevitable and integral part of domestic or international business around the world. Alternative dispute resolution mechanisms are necessary for resolving business disputes through objective consideration as well as people's perception. International commercial arbitration, the most common form of international arbitration, occurs between parties based in different countries.⁴ Businesses from different countries generally prefer to arbitrate their disputes rather than adjudicate them in the courts of one side or another.⁵ This is because they believe an international tribunal is likely to be more independent of national prejudices and more knowledgeable about international business practices than an ordinary national court of law would be. Similar with arbitration, technology has become an part of our lives. The interaction between technology and arbitration should not be seen as a question for the future, but rather as something that is happening right now.⁸ The constant development of new technologies is creating many new challenges and these challenges relate to how technology can be properly integrated to best meet the needs of arbitration.⁹ Therefore, such new technologies should provide tools to improve the process of conducting arbitral proceedings.

Judge Edith Cynthia A. Wee-Cabbat

First-level court Judge, Philippines

Abstract:

PROBATIVE VALUE OF DIGITAL SURVEYS IN LAND-RELATED DISPUTES: A STUDY ON THE USE OF DIGITAL SURVEYS AS EVIDENCE IN PHILIPPINE COURTS

Land-related disputes are among the common disputes not only between family members but also between neighbors and persons who would both advance claims over a particular property. It may be due to conflicting land claims, boundaries dispute, if someone suddenly entered one's property or if there will be the so-called illegal entrants, and if land titles were fraudulently obtained or were defective. This paper will briefly discuss the types of survey commonly used as evidence in Philippine courts and its importance in the resolution of land-related disputes. Taking into consideration the advancing technologies that led to the advent of digital surveys, the paper will present discussion on some of the challenges faced by digital surveys, specifically the ones taken using Google maps or aerial survey, when used as evidence in land-related disputes. Using the analytical research design, the paper concludes that in resolving land-related disputes, specifically boundary disputes, the traditional survey or the ground-based survey using the commonly used surveying equipment Total Station is still the most reliable type of survey method considering that on the ground, the surveyor will be able to determine the boundaries or the metes and bounds of every property by personally locating the corners with cylindrical concrete monuments. While modern surveying techniques, like aerial or drone survey, provide a detailed overview of the area and fast results, its technical aspect as well as the expertise of the person who conducted the survey must still be established and proved before the survey report may be given evidentiary weight. Failure on the part of the surveyor to fully and clearly explain the process how the aerial or drone survey was conducted cast doubts as to its accuracy. Thus, though, aerial or drone survey may be admitted in evidence under the Philippine legal system, it does not necessarily follow that it will be given probative value as well. They may be relevant to the fact in issue but they may not prove an issue.

FORENSIC SCIENCE

23rd - 25th August 2024



CONFERENCE SCHEDULE

08:00 TO 09:00 IST

Early Meal



08:00 TO 09:15 IST

Registration

09:30 TO 11:00 IST

Inauguration & Award Ceremony



Chief Guest

Justice Arun Kr. Mishra

Former Judge, Supreme Court of India
Former Chairperson,
National Human Rights Commission of India

Guest of Honor

Hon. Susan A Yap

Governor
Provincial Government of Tarlac
Philippines

11:00 TO 11:15 IST

HIGH TEA



SCIENTIFIC SESSION-1

Auditorium



11:15 TO 12:00 IST

Dr. Henry C. Lee



New Concepts in Criminal Investigation



12:00 TO 12:30 IST

Dr. G.K. Goswami



Law and Forensic Justice: An Intertwined Paradigm



12:30 TO 13:00 IST

Hon. Susan A Yap



World War II Forensics and Tarlac History and Heritage Initiatives

13:00 TO 14:00 IST

NUTRITIONAL HEALTH BREAK



SCIENTIFIC SESSION-2

Auditorium



14:00 TO 14:45 IST

**Prof. (Dr.) Ma. Teresa G. De Guzman**

Unearthing Secrets, Healing Wounds: Beyond Archaeology, The Expanding Power of Heritage Forensics



14:45 TO 15:15 IST

**Dr. Charesma Grace K. Lud-Ayen**

Domestic Violence Perpetrators In Jail: A Comprehensive Study



15:15 TO 15:45 IST

**Dr. Niño M. Kabling, Rcrim.**

Can Directed Lies Reveal The Truth? An In-Depth Analysis of the Directed Lie Screening Test in Polygraph Examination

15:45 TO 16:00 IST

TEA BREAK



SCIENTIFIC SESSION-3

Auditorium



16:00 TO 16:30 IST

**Dr. Ritesh Shukla**

Cutting Edge Research in the field of Forensic Nanotechnology: Preventive and Investigative Approach



16:30 TO 17:30 IST

Panel Discussion

**Keshav Kumar (IPS)****Dr. Harsh Sharma****Prof. (Dr.) Mukesh Thakar**

CSI: The Intersection of Law, Science, and Justice

SCIENTIFIC PAPER PRESENTATIONS

Conference Hall

Professional Category

-  **PPA-01 Khushali Sanjay Kumar**  **14:00 IST**
A Feeble Morale: The Precursor to Criminal Behaviour
-  **PPA-02 Yogesh Kumar**  **14:10 IST**
Analyzing Crime through the Stars: Forensic Jyotish as a Tool in Criminal Investigations
-  **PPA-03 Dr. Sunil Kumar Dahiya**  **14:20 IST**
Importance Of Forensic Expert At Crime Scene–An Overview
-  **PPA-04 Dr. Jayanta Talukdar**  **14:30 IST**
Correlation Of Height With Foot Length –A Cross Sectional Study Among Indigenous Khasi Population Living In And Around Shillong
-  **PPA-05 Dr. Vineeta Saini**  **14:40 IST**
Unveiling Clues Beneath the Surface: Physicochemical Characterization of Soil Samples for Forensic Crime Scene Investigation
-  **PPA-06 Tania**  **14:50 IST**
Development Of Latent Fingerprint Using Copper Doped Zinc Sulphide Nanoparticles
-  **PPA-07 Ruchika Dwivedi**  **15:00 IST**
A Systematic Review on Green Synthesis of Nanoparticles for Latent Fingerprint Development
-  **PPA-08 Neelakshi Dwivedi**  **15:10 IST**
The Role of Forensic Science and Technology in Indian Criminal Justice Administration: A Socio–Legal Study
-  **PPA-09 Dr. Kanika Chhikara**  **15:20 IST**
Hand Anthropometry for Forensic Identification and Sex Estimation in the Haryanvi Population.
-  **PPA-10 Dr. Kuldeep Kumar**  **15:30 IST**
Computer Forensics in the AI Era: A Crucial Need for IT and Technology Companies
-  **PPA-11 Dr. Twisha Shah**  **15:40 IST**
Drones in Crime Scene Analysis as New Forensic

**PPA-12 Dr. Aaeen Alchi**

15:50 IST

Smart Watch as Forensic Timekeepers in Post-mortem Investigations

**PPA-13 Ridhi Khandelwal**

16:00 IST

Age Estimation through melanosomes in root hair follicle

**PPA-14 Jaya**

16:10 IST

Fingerprint Method Traditional Vs Digital

**PPA-15 Chongtham Nimi**

16:20 IST

Implementing ATR-FTIR Spectroscopy and Chemometrics for the Forensic Identification and Differentiation of Sexual Lubricants and their Traces

**PPA-16 Vaibhav Kumar**

16:30 IST

A Shift from Destructive to Non-Destructive Techniques in advancement of Fire Debris Analysis: Towards Precision and Preservation

**PPA-17 Jogiparthi Shravya**

16:40 IST

The Psychological Effects of Sexual Harassment in Women

**PPA-18 Priya**

16:50 IST

Recent Advancement in Key Restoration by Chemical Etching Methods

**PPA-19 Shristi**

17:00 IST

Development of Latent Fingerprints on Organic Surfaces: A comprehensive Study

**PPA-20 Khyati Rao**

17:10 IST

Artificial Intelligence and it's Role in Forensic Karyotyping

**PPA-21 Palak Aneja**

17:20 IST

Authenticity & Forensic Speaker Identification of Old-Aged Morphed Male and Female Audios

08:00 TO 09:00 IST

EARLY MEAL



SCIENTIFIC SESSION-4

Auditorium



09:00 TO 09:45 IST

**Dr. Jose Ignacio Dela Rama Jr.**

Importance of Forensic in the Appreciation of Evidence



09:45 TO 10:30 IST

**Prof. Jeff Cheng-Lung Lee Ph.D**

Emerging Technologies in Criminal Investigation: A New Era



10:30 TO 11:00 IST

**Dr. Rajesh Kumar**

Forensic Analysis: Performance of Humans versus Machines

11:00 TO 11:15 IST

TEA BREAK



SCIENTIFIC SESSION-5

Auditorium



11:15 TO 12:00 IST

**Prof. (Dr.) Robert Green OBE**

Enhancing Justice: The role of the Forensic Biologist in Sexual Crime cases



12:00 TO 12:30 IST

**Dr. Rajinder Singh Chandel**

ATR-FTIR Spectroscopy: A Novel Approach in Wildlife Forensics



12:30 TO 13:00 IST

**Dr. Sumit Chaudhary**

Research Frontiers & Strategy Forecasting in Forensic Ballistics

13:00 TO 14:00 IST

NUTRITIONAL HEALTH BREAK



SCIENTIFIC SESSION-6

Auditorium



14:00 TO 14:30 IST

**Shams Tahir Khan**

Importance of Forensics in Media Reporting



14:30 TO 15:00 IST

**Atty. Aloï Renz P. Santos**Role of Forensics in Human Rights Investigations:
Ensuring Accountability and Upholding Justice

15:00 TO 15:30 IST

**Atty. Jewel O. Dela Cruz, LL.M.**Children, Science, and the Law: a Legal Analysis
of Forensic Science in Cases Involving Children

15:30 to 15:45 IST

TEA BREAK



SCIENTIFIC SESSION-7

Auditorium



15:45 TO 16:15 IST

**Dr. Surbhi Mathur**

Faking Reality: Deepfake Dilemmas in Modern Forensics



16:15 TO 16:45 IST

**Dr. Nolasco R. Saporne, RCrim.**Emerging Technologies and Strategies for Enhancing
Safety and Physical Security in Casino Operations

16:45 TO 17:15 IST

**Dr. Jaysankar P. Pillai**

"Teeth in Fire" – Role in Forensic Human Identification



17:15 TO 17:45 IST

**Dr. Prateek Pandya**

Integrating Forensic Disciplines: The Synergy of Chemistry in Modern Investigations

SCIENTIFIC SESSION-8

Conference Hall



09:30 TO 10:00 IST

**Dr. Mary Jane Louise Bolunia**

Forensic Science, Archaeology and Heritage



10:00 TO 10:30 IST

**Dr. Atty. Ariel D. Valones**

Artificial Intelligence and the Metaverse of Forensic Medicine: The Pandora's Box of the Future Courtroom Evidentiary Procedure



10:30 TO 11:00 IST

**Dr. Glenn R. Luansing, DCL, PDSML**

Emerging Trends in the Gathering and Preservation of Forensic Evidence Among Allied Health Workers

SCIENTIFIC SESSION-9

Conference Hall



11:15 TO 12:00 IST

**Ma. Josefina Jacala**

Detecting Plagiarism: A Comprehensive Guide



12:00 TO 12:30 IST

**Atty. Enrico Miguel Dela Rama Dizon**

Postal Codes: Problem Areas in the Appreciation of Social Media Posts as Evidence



12:30 TO 13:00 IST

**Emanuel C. Manahan, RCrim, MCJE**

Revolutionizing Forensic Ballistics: Cutting-Edge Technologies and Their Impact

SCIENTIFIC PAPER PRESENTATIONS

Conference Hall

Student Category

-  **SPA-01 Ashwin Edakkara**  **14:00 IST**
From Chloroplast To Mitochondria: First Initiative Of DNA Barcoding Of Poisonous Plants In India
-  **SPA-02 Thayanithi C.A**  **14:10 IST**
Advancements In Skull Superimposition Techniques For Forensic Identification
-  **SPA-03 Kamayani Vajpayee**  **14:20 IST**
Understanding The Mechanism Of PCR Inhibition By Melanin
-  **SPA-04 Arundhati Pandit**  **14:30 IST**
Role of Nanotechnology in the field of Crime Scene Investigation
-  **SPA-05 Shivani Tiwari**  **14:40 IST**
Comparative study of Passive Pollen retention on Various Types of Fabrics
-  **SPA-06 Dr. Rahul Kaushik**  **14:50 IST**
Completely calcified stylohyoid ligament with accessory hyoid bone–A rare case report
-  **SPA-07 Anuradha Sandhu**  **15:00 IST**
Advanced Forensic Materials: Harnessing the Power of Smart Hydrogels
-  **SPA-08 Shubhangi Bisht**  **15:10 IST**
Peel to Prints–(Exploring Natural Peels for Development of Latent Fingerprints)–A Review
-  **SPA-09 Vandana Rajput**  **15:20 IST**
Graphology
-  **SPA-10 Shalini Kushwaha**  **15:30 IST**
A Comprehensive Review of Different Analytical Techniques used for Analysis of Dental Restorative Materials for Forensic Purposes
-  **SPA-11 Shudhanshu Mani Tripathi**  **15:40 IST**
Forensic Perspective towards the Estimation of Time since Deposition of Semen and Saliva: An RNA Degradation Based Approach
-  **SPA-12 Sameeksha Dubey**  **15:50 IST**
Examining Protein Profiles and Modifications to Complement DNA Evidence

SCIENTIFIC POSTER PRESENTATIONS

Hall Basement

Professional Category 14:00 IST onwards**PPO-01 Mohini Kumari Singh**

Comparative Analysis on Ridge Density in Both Thumbs of Population for Different Age Group

**PPO-02 Shrijoy Banerjee**

Haplogroup Study of the West Bengal Population: An Archaeological Approach from the Specs of Forensic Science

**PPO-03 Nisha Rani and Arti Yadav**

Estimation of age and sex from fingernail clippings by using ATR-FTIR spectroscopy coupled with chemometric interpretation

**PPO-04 Maheep Saxena**

Recent Trends in Hybrid Deep Learning Models for Malware Analysis: A Comprehensive Review

**PPO-05 Ayushi Arora**

Unraveling the Craniofacial Index: A Study on Western Uttar Pradesh Population of India

**PPO-06 Christy Susan Thomson**

Investigation and Examination of Fire-Related Cases: Patterns, Causes and Implications

**PPO-07 Muskaan Makhija**

Poroscopy in Forensic Science: A Detailed Overview

**PPO-08 Manju**

Forensic Analysis of Work-Related Patterns in Fingerprints and Palmprints Across Various Professions: A Comparative Study

**PPO-09 Kanika Gupta**

MIKC-Type MADS Domain Proteins: Morphological and Genetic Analysis of Inflorescence and Flower Development in Varieties of C. Sativa

**PPO-10 Dimple Bhatia**

Differentiation of Royal Bengal Tiger and Indian Leopard bones using ATR-FTIR spectroscopy: A forensic tool for wildlife conservation

SCIENTIFIC POSTER PRESENTATIONS

Hall Basement

Student Category

 14:00 IST onwards**SPO-01 Aparna Sudheen**

Forensic Anthropology

**SPO-02 Deep Sandipkumar Patel**

Development Of Latin Print, Using Medicinal Drugs Powder Using Dolo And Paracetamol Tablet

**SPO-03 Prachurya Saha**

Hirisplex S System: A Forensic DNA Phenotyping Tool To Identify The Pigmentation Trait

**SPO-04 Buvanesan K**

Investigation Of Age-Old Coins By Instrumental Neutron Activation Analysis For Forensic Applications

**SPO-05 G Krishna**

Forensic Analysis Of AI-Modulated Threatening Voices: A PRAAT-Based Study

**SPO-06 Shreya Tewary**

Quantum Dots In Crime Scene Investigation: State Of The Art And Emerging

**SPO-07 Aashritha Marouthu**

Drug Design

**SPO-08 Shayani Das**

From Chaos To Clarity: Innovations In Identifying Victims And Investigating Mass Disasters

**SPO-09 Mayukh Bhadra**

The West Bengal National University of Juridical Sciences

**SPO-10 Mahima Choudhary**

Corelation between Fingerprint and ABO Blood Group

**SPO-11 Malavika Venu**

Forensic Entomology

**SPO-12 Monalisa Mohanty**

Forensic polynology sample collection and sample preparation for forensic investigation

**SPO-13 Piyusha Roy**

The Impact of pH and Temperature on Decipherment Frixion Ink Erasability using Non Destructive Method

**SPO-14 Sayoli Dharamshahare**

Decipherment of Indentation on the Stone Paper: Forensic Document Examination

**SPO-15 Mohd Aman**

Forensic Anthropology

**SPO-16 Rajput Sakshi Kumari Sunil Singh**

Using Forensic Biology to Extract DNA from Lipstick

**SPO-17 Kumari Puja**

The Synergistic Role of Forensic Linguistics and Handwriting Examination in Analyzing Threat and Ransom Letters

SCIENTIFIC SESSION-1 (Online)

Room-1



10:00 TO 10:30 IST

Dr. Kimberly Anne Plomp

Developing Forensic Anthropology and Archaeology in Asia



10:30 TO 11:00 IST

Prof. Ivana Cukovic-Bagic

Child Abuse: Highlights For A Brighter Future

SCIENTIFIC PAPER PRESENTATIONS (Online)

Room-1

Professional Category**PPA-01 Kiruthiga U**

11:00 IST

Statistical Estimation Of The Age Of The Fingerprint Donor Using Atomic Force Microscopy: A Prospective Study Using Non-Destructive Method

**PPA-02 Dr. Prashant Ashok Punde**

11:10 IST

Comparative Analysis Of Sex Determination Using Forensic Odontometry & Palatine Rugae Configuration In Western Maharashtra: In Vitro Study

**PPA-03 Dr. Sukhpal Kaur**

11:20 IST

Need to Explore – Bite Mark Analysis

**PPA-04 Beta Ahlam Gizela**

11:30 IST

Assessing The Assessment: Indonesian Forensic Pathology Residency Training National Exam



ONLINE

PPA-05 Dr. Dhivagar K.

11:40 IST

Rodenticide Poisoning: A Case Series Of Deliberate Self-Harm Admitted To A Tertiary Health Care Hospital In Northern Karnataka



ONLINE

PPA-06 Marcela Patricia Del Sol-Hallett

11:50 IST

Criminal/Victim Profiling, Professional Behavior



ONLINE

PPA-07 Himanshu

12:00 IST

Forensic Analysis of Drug Seizures: Challenges and Solutions



ONLINE

PPA-08 Rosaria Anna La Malfa

12:10 IST

Oral Autopsy



ONLINE

PPA-09 Dr. Neelkamal

12:20 IST

GC-MS Analysis Of THC Content In Cannabis Sativa Leaves: Geographical and Seasonal Indicator



ONLINE

PPA-10 Satish H L

12:30 IST

Need Of Critical Due Diligence In Banks To Prevent Document Fraud



ONLINE

PPA-11 Shreekrishna HK

12:40 IST

Intracranial Haemaorrhge Due To Snake Envenomation In An Elderly Female-An Autopsy Case Report



ONLINE

PPA-12 Dr. Suchita Rawat

12:50 IST

A Pilot Study On The Identification Of Blood Using Raman Spectroscopy



ONLINE

PPA-13 Prof. T. Nataraja Moorthy

13:00 IST

Mysterious Metal Pipe Found In The Railway Track: Planned For Sabotage Or Bogus? My Real Crime Scene Investigation



ONLINE

PPA-14 Salma Rashid

13:10 IST

Sex Determination Using Ramus As A Tool – A Retrospective Study



ONLINE

PPA-15 Madona Mathew

13:20 IST

Plant Poisonings in India: Forensic Analysis, Investigative Challenges, and Legal Implications



ONLINE

PPA-16 Jaswinder Singh

13:30 IST

Personal Identification of Fingerprints by Using Quadant Based Method



ONLINE

PPA-17 Dr. Preeti Singh

13:40 IST

An Anthropometric Assessment of Philtrum

**PPA-18 Majing**

13:50 IST

Digital Forensics And Cybercrime

**PPA-19 Mr. Mallikarjunagouda**

14:00 IST

Rainy Season and Crime Investigation Challenges Faced by Police in Belagavi District, Karnataka: A Case Study

**PPA-20 Smt. Priyanka Chavan**

14:10 IST

Crime Scene Investigation and Reconstruction

**PPA-21 Yakubu Magaji Yuguda**

14:20 IST

Recent Advances in Forensic Techniques for Ecosystem Analysis

**PPA-22 Dr. Bhavani. S.N.**

14:30 IST

Sexual Dimorphism Assessment by Linear Odontometric in a Navi Mumbai Population of Maharashtra: A Cross-sectional Study

**PPA-23 Dr. Swapna Amod Patankar**

14:40 IST

Advancements in Forensic Odontology through Nanotechnology

**PPA-24 Dr. Shweta Sharma**

14:50 IST

Digital Deception: The Rise of Honey Traps in the Online Era

SCIENTIFIC SESSION-2 (Online)**Room-2****09:30 TO 10:00 IST****Mykedox Knoel T. Cuchapin**

Establishing Legal Identity, Civil, and Human Rights thru Forensic under the Lens of International Law

**10:00 TO 10:30 IST****Judge Edith Cynthia A. Wee-Cabbat**

Probative Value of Digital Surveys in Land-Related Disputes

**10:30 TO 11:00 IST****Dr. Allesandra Fay V. Albarico**

Achieving Arbitral Justice in International Commercial Arbitration through Forensic Science: A Philippine Experience so Far

SCIENTIFIC PAPER PRESENTATIONS (Online)

Room-2

Student Category

-  **SPA-01 I. Gusti Lanang Bumi Agung**  **11:00 IST**
 Battered Child Syndrome
-  **SPA-02 Deepika Sharma**  **11:10 IST**
 Use of Anthropometry in Personal Identification: A Review on Somatometry
-  **SPA-03 Hiba Thahar**  **11:20 IST**
 Microscopic Analysis Of Writing On Disruptive Paper
-  **SPA-04 Janki D. Kacha**  **11:30 IST**
 Role Of MATLAB Software In Multimedia Forensics
-  **SPA-05 Dr. Chandini C. Nair**  **11:40 IST**
 Estimation Of Age From Thyroid Cartilage Measurements
-  **SPA-06 Sayudha Biswas**  **11:50 IST**
 NATURE Vs NURTURE: The MAOA Gene
-  **SPA-07 Shweta Nitin Mahajan**  **12:00 IST**
 Psychosocial Profiling Of Juveniles In Conflict With Law : An Exploratory Study In India
-  **SPA-08 Utheyashankeri Ramakrishanan**  **12:10 IST**
 Stature and Body Weight Determination from Finger Anthropometry among Madurese Population in Madura Island Indonesia for Forensic Application
-  **SPA-09 Arrchana C.**  **12:20 IST**
 Quantitative Analysis of DNA Profiling Attained From Various Conditions of Sternums
-  **SPA-10 Sakshi**  **12:30 IST**
 Forensic Analysis of Security Features in Indian Currency
-  **SPA-11 Bhanuthejas S. Shetty**  **12:40 IST**
 Digital Forensics
-  **SPA-12 Sweety Santra**  **12:50 IST**
 Adulteration in Packaged Milk Products: Impact on Women's Health and Wellbeing

**SPA-13 Isha Chhapadia**

13:00 IST

From Glass To Growth: Analysis And Impact Of Common Milk Adulterants on Children's Development

**SPA-14 Shivaani Asokan**

13:10 IST

Eye Morphometric Analysis and It's Role in Gender Determination among Malaysian Indian for Person Identification

**SPA-15 Durga Devi Sandran**

13:20 IST

Non-Invasive In-Situ Identification and Age Determination of Bloodstains Via ATR-FTIR Spectroscopy and Advanced Chemometrics: Towards a Novel Green Framework for Forensic Analysis

**SPA-16 S. Megha**

13:30 IST

Enumerating Active Hidden Services Within The TOR Network Using A Python Crawler

**SPA-17 Suria Kalidas**

13:40 IST

Determination Of Gender From Nasal Anthropometry Among Malaysian Telugu Population In Peninsular Malaysia For Person Identification

**SPA-18 Manju**

13:50 IST

A Review Of Forensic Ballistics: Methods And Techniques For Cartridge Case Analysis

**SPA-19 Patel Yachi Daxesh**

14:00 IST

Countering Terrorism: Advancements, Challenges, and Case Studies

**SPA-20 Dr. Valarmathi. R**

14:10 IST

Forensic Psychology and Ethics: Legal Issues and Challenges

**SPA-21 Mehek Kaunain Saba**

14:20 IST

Forensic Psychology and Behavioural Analysis, Title-Comparative Study of Psychopathic Traits in Adolescents

**SPA-22 Manisha**

14:30 IST

Forensic Speaker Recognition Using Vowel Acoustic and Auditory Features

**SPA-23 Bristi Ghosh**

14:40 IST

Bite Marks and Its Forensic Significance

**SPA-24 Navdha Bhardwaj**

14:50 IST

Utilizing Facial Recognition Technology to Combat Drug Smuggling

**SPA-25 Ketan Baranwal**

15:00 IST

Analysis of Familial Inheritance of Handwriting Traits

**SPA-26 Dr. Ankit Mittal**

15:10 IST

A case of deep dissection: Bruise vs Sepsis

**SPA-27 Mohammed Ali Ahmed Alwaeel**

15:20 IST

Evaluating Methadone Stability in Urine: Temperature and Time Effects

**SPA-28 Jyothi Abraham**

15:30 IST

Digital Footprints in India: Legal Challenges and Solutions

**SPA-29 Don Caeiro**

15:40 IST

Influence of Mahazaar Witness on Admissibility of Evidence in Murder Cases of Bangalore City (Cases disposed between 2018 and 2020)

**SPA-30 Diksha Thakur**

15:50 IST

Common Adulterants Present in Illicit Heroin in Northern India and Their Forensic Relevance

**SPA-31 Ephrin S**

16:00 IST

Development of Novel Potentiometric–Based Prototype for the Detection of Codeine Phosphate Present in the Commercial Samples for Forensic Application

**SPA-32 Nupoor Gopal Neole**

16:10 IST

Ruthenium–Based Molecular Electrocatalysts Derived from Pyridine Substituted 1, 2, 4–Triazol–5–Ylidenes for the Ultra Trace–level Detection of Date Rape Drugs

**SPA-33 Sanjida Shabnam**

16:20 IST

Microscopic Study of Surface Morphology and Filtering Efficiency of Commonly Available Face Masks used by the Population of Bilaspur, Chhattisgarh, India

SCIENTIFIC SESSION–3 (Online)

Room–3



09:30 TO 10:00 IST

**Dr. Natasha Dimeska**

Importance of introducing a forensic approach in social work for working with child victims and witnesses of violence



10:00 TO 10:30 IST

**Dr. Dita Capraz**

Psychological Factors Underlying Criminal Behavior



10:30 TO 11:00 IST

**Amir Liberman**

Deeper into investigations with LVA, beyond the True and False

SCIENTIFIC POSTER PRESENTATIONS (Online)

Room-3

Student Category

- | | | |
|--|---|---|
| 
 | SPO-01 Dr. Sunil Kumar Meemrot
Conflict In Rights Of Fetus |  11:00 IST |
| 
 | SPO-02 Dr. Wiwin Ida Nur Sri Wahyuni
Autopsy Findings in Colorectal Cancer with Liver Metastasis: A Case Report |  11:10 IST |
| 
 | SPO-03 Dr. Yudha Erik Prabowo
Autopsy Findings Death Due to Drowning: A Case Report |  11:20 IST |
| 
 | SPO-04 Dr. Setya Aji Priyatna
Examination Methanol Levels in Case of Intoxication Methanol: A Case Report |  11:30 IST |
| 
 | SPO-05 Fadhly Azis
Chop wound due to Violent Traumatic Amputation between Elbow and Wrist: A Case Report |  11:40 IST |
| 
 | SPO-06 Ekky Andhika Ilham
Autopsy Finding of Liver Injury in Abdominal Trauma: Case Report |  11:50 IST |
| 
 | SPO-07 Nithila MK
The Dark Side of AI: Use Of AI in Cybercrimes |  12:00 IST |
| 
 | SPO-08 Bendi Mahita
Fentanyl: A Rising Threat in the Modern Opioid Crisis |  12:10 IST |
| 
 | SPO-09 Pratyay Mukherjee
Forensic Biology-(Extraction and Identification Methods of Diatoms in Drowning Cases-A Review) |  12:20 IST |
| 
 | SPO-10 Aratrika Roy
Development of Latent Fingerprints on Non Porous Surfaces Using Organic Nano-Powders |  12:30 IST |
| 
 | SPO-11 Wira Santoso Ongko
Eye Injury |  12:40 IST |
| 
 | SPO-12 Bhavya Sharma
Investigating the Impact Of Various Fabrics on Acoustic Voice Parameters: A Forensic Study |  12:50 IST |
| 
 | SPO-13 Aman Sharma
Comparison of Data Recovery from Android Mobile Phones using XRY and Oxygen Forensics |  13:00 IST |

**SPO-14 Uttam Singh**

13:10 IST

Persistence of Inorganic Gunshot Residue (IGSR) on Cotton Cloth Targets with Respect to Different Washing Techniques.

**SPO-15 Ashutosh Sarkar**

13:20 IST

Microbiota: The Next Frontier in Biometric Identification–A Review Paper

**SPO-16 Niharika D N**

13:30 IST

A Study on Traditional Methods Followed for Committing Infanticides and Neonaticides During Olden Days in the Districts of Tumkur and Chikkaballapur, Karnataka

**SPO-17 Niharika KS**

13:40 IST

A Comparative Study of Occupational Stress and Ptsd Among Crime Investigators and Non-Investigative Professionals

**SPO-18 Ankita Pundir**

13:50 IST

Advances In Forensic Science: ATR–FTIR For Ink Examination

**SPO-19 Divya Katyal**

14:00 IST

Unravelling The Effect of Handwriting in Diabetes Mellitus Patients–A Guide

**SPO-20 Sneha Suresh**

14:10 IST

Body Posture And Its Impact on Handwriting

**SPO-21 Goutham Ramesh**

14:20 IST

Investigating the Facilitation of Illicit Activities on Social Media Platforms: A Case Study of Instagram

**SPO-22 Thurgashwiny A/P Subramaniam**

14:30 IST

Stature and Gender Determination from Ear Morphometry among Malaysian Indians from Forensic Perspective

**SPO-23 Shayan Chakraborty**

14:40 IST

Illuminating Brain Fingerprinting: Deciphering Brain Responses to Relevant Information

**SPO-24 Suchithra J S**

14:50 IST

Flight to Extinction: The Blue Macaw's Struggle Against the Illegal Pet Trade

**SPO-25 Jatinder Kaur**

15:00 IST

Forensic Examination of the Effect of Psychotropic Medication/Substances on Handwriting

**SPO-26 Nithyapriya Sajeev**

15:10 IST

Comparison of Handwritten Signature samples using Different types of Pens



SPO-27 Bhanuthejas S. Shetty

 15:20 IST

Digital Forensics



SPO-28 Saraswath Ruchita Sharma

 15:30 IST

Comparative Study of DNA yield from various Blood samples collected under Different Conditions



SPO-29 Sari Nur Indahty Purnamaningsih

 15:40 IST

DNA-Based Mutilation Victime Identification: Case Report



SPO-30 Diksha Thakur

 15:50 IST

Analytical Method Validation for the Detection of Pharmaceutical Opioids in Currency Note



SPO-31 Ibnu Chaldun, Dr.

 16:00 IST

Autopsy Finding on Neonaticide: Case Report



SPO-32 Dr. Vikram S. Amberkar

 16:10 IST

Forensic Facial Reconstruction



SPO-33 S Darshan

 16:20 IST

Enhancing Latent Fingerprint Identification Through AI-Driven Analysis: Innovations and Applications in Forensic Science

08:00 TO 09:00 IST

EARLY MEAL



SCIENTIFIC SESSION-10

Auditorium



09:00 TO 09:45 IST

**Dr. Rajesh Verma**

The paradigm shift in forensic voice comparison evaluation



09:45 TO 10:30 IST

**Prof. (Dr.) Asha Srivastava**Criminal profiling and Behavioural Evidence Analysis:
Understanding Criminal Investigation

10:30 TO 11:00 IST

**PCPT Jeric C. Manalili, RPsy, RPsM**

The Role of Forensic Psychology in Investigation

11:00 TO 11:15 IST

TEA BREAK



SCIENTIFIC SESSION-11

Auditorium



11:15 TO 12:00 IST

**Prof. (Dr.) Emilio Nuzzolese**Embracing Technological Advancements in
Forensic Odontology

12:00 TO 12:30 IST

**Dr. Evi Untoro**

Forensic Pathology a Global Scenario and Development



12:30 TO 13:00 IST

**Dr. Danilo Magtanong**Insights into Forensic Odontology: A General Practitioner's
Perspective

13:00 TO 14:00 IST

NUTRITIONAL HEALTH BREAK



SCIENTIFIC SESSION-12

Auditorium



14:00 TO 14:30 IST

**Dr. Jay T. Dalet**

Unveiling Crime Scene Biology: Applications of RNA-FISH in Forensic Casework Analysis



14:30 TO 15:00 IST

**Adv. Bharat Chugh**

Role of Forensics in New Indian Law



15:00 TO 15:30 IST

**Dr. Irene D. Valones, DCL, DPA**

Cyber Forensics in the Big Data and Internet of Things (IoT): A Transnational Governance of Digital Investigation and Evidence Acquisition in the Post Pandemic Era



15:30 TO 16:00 IST

**Dr. Ankit Srivastava**

Science in the Courtroom: Advances in Forensic Evidence Admissibility

16:00 to 16:15 IST

TEA BREAK



SCIENTIFIC SESSION-13

Conference Hall



09:30 TO 10:00 IST

**Abel Samuel Odeh**

Use of Forensic in Nigerian Police



10:00 TO 10:30 IST

**Atty. Mark Anthony N. Manuel, LPT**

AI Uses in Forensic Science: Challenges and Opportunities



10:30 TO 11:00 IST

**Cristina Elaine Domingo Mangrobang**

Forensic Science as Intrinsic Component in the Administration of Justice in the Philippines: A Critical Analysis

SCIENTIFIC SESSION-14

Conference Hall



11:15 TO 12:00 IST

**Dr. Mildred D. Martinez-Tria**

Shattering The Glass Ceiling: Women in Forensic Science



12:00 TO 12:30 IST

**Archie Lawrence Geneta**

Assessment of Psychological Incapacity in the Philippines: Sharing of Personal Practice with Clients who have Undergone Annulment



12:30 TO 13:00 IST

**Marilet Santos Layug**

Beyond Reasonable Doubt: Integration of Forensic Evidence in Philippine Laws

SCIENTIFIC SESSION-15

Conference Hall



14:00 TO 14:30 IST

**Atty. Bernadette P. Baylon, J.D.**

Problem Areas in Criminal Procedure



14:30 TO 15:00 IST

**Raymielle Christie Romero Magcalas**

Holding Out for a Hero: Forensic Science and the Rights of Children Who are Victims of Human Rights Violations

CLOSING CEREMONY

Auditorium



16:15 TO 17:00 IST

Valedictory Function**Chief Guest****Dr. Henry C. Lee**Emeritus Professor,
University New Haven, USA**Guest of Honor****Keshav Kumar (IPS)**Retired Director General of Police
Director Anti Corruption Bureau, Gujarat
Consultant, Govt. of Assam,
Home Dept. & Political Affairs**Special Guest****Dr. Salunkhe**AKA Sh. Narendra Gupta
CID Fame Forensic Expert
Actor, Bollywood

Research PRESENTATIONS



PAPER PRESENTATION (PROFESSIONAL CATEGORY)

- ❖ **PPA-01 | Khushali Sanjay Kumar**
A Feeble Morale: The Precursor to Criminal Behaviour
- ❖ **PPA-02 | Yogesh Kumar**
Analyzing Crime through the Stars: Forensic Jyotish as a Tool in Criminal Investigations
- ❖ **PPA-03 | Dr. Sunil Kumar Dahiya**
Importance of Forensic Expert At Crime Scene- An Overview
- ❖ **PPA-04 | Dr. Jayanta Talukdar**
Correlation of Height with Foot Length –A Cross Sectional Study Among Indigenous Khasi Population Living In And Around Shillong.
- ❖ **PPA-05 | Dr. Vineeta Saini**
Unveiling Clues Beneath the Surface: Physicochemical Characterization of Soil Samples for Forensic Crime Scene Investigation
- ❖ **PPA-06 | Tania**
Development Of Latent Fingerprint Using Copper Doped Zinc Sulphide Nanoparticles
- ❖ **PPA-07 | Ruchika Dwivedi**
A Systematic Review on Green Synthesis of Nanoparticles for Latent Fingerprint Development
- ❖ **PPA-08 | Neelakshi Dwivedi**
The Role of Forensic Science and Technology in Indian Criminal Justice Administration: A Socio-Legal Study
- ❖ **PPA-09 | Dr. Kanika Chhikara**
Hand Anthropometry for Forensic Identification and Sex Estimation in the Haryanvi Population.
- ❖ **PPA-10 | Dr. Kuldeep Kumar**
Computer Forensics in the AI Era: A Crucial Need for IT and Technology Companies
- ❖ **PPA-11| Dr. Twisha Shah**
Drones in Crime Scene Analysis as New Forensic
- ❖ **PPA-12| Dr Aaeen Alchi**

- Smart Watch as Forensic Timekeepers in Post-mortem Investigations
- ❖ **PPA-13 | Ridhi Khandelwal**
Age Estimation through melanosomes in root hair follicle
 - ❖ **PPA-14 | Jaya**
Fingerprint Method Traditional Vs Digital
 - ❖ **PPA-15 | Chongtham Nimi**
Implementing ATR-FTIR Spectroscopy and Chemometrics for the Forensic Identification and Differentiation of Sexual Lubricants and their Traces
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PPA01

A FEEBLE MORALE: THE PRECURSOR TO CRIMINAL BEHAVIOUR

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Abstract

This paper sets forth that a decline in moral development, distinctly evident in the shift from Millennials to Gen Z and Alpha, is a significant precursor to criminal behavior. Building upon Kohlberg's theory of moral development, the study attempts to explore the causality of a weakened moral compass, aggravated by socioeconomic factors, media influence and distorted self-concept, which can cumulatively contribute to criminal tendencies. The paper challenges the highly romanticized notion of the "rebel with a cause", arguing that this ideology often masks a deeper moral deficit. To exhibit the impact of moral development on criminal behavior, the cases of Mehnaz Zaman and Pedro Rodriguez Filho are analyzed. By understanding the complex interplay between these psychosocial factors, the paper aims to contribute to the development of effective crime prevention strategies and rehabilitation programs.

Keywords: Moral Development, Criminal Behaviour, Moral Deficit, Self-Concept, Generational Gap.

PPA02

ANALYZING CRIME THROUGH THE STARS: FORENSIC JYOTISH AS A TOOL IN CRIMINAL INVESTIGATIONS

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Abstract

Forensic Jyotish, an emerging field within the realm of astrology, aims to provide insights into criminal investigations by analyzing astrological charts and planetary positions. This paper presents a comprehensive examination of the application of Forensic Jyotish in criminal investigations, comparing it with traditional investigative techniques. The study explores the potential benefits and challenges associated with incorporating astrological analysis into forensic science. It examines case studies where Forensic Jyotish has been utilized and evaluates its effectiveness in providing additional insights into suspect identification, behavioral profiling, and motive determination. The paper also delves into the criticisms and limitations of Forensic Jyotish, addressing concerns regarding its scientific validity and subjectivity. Through a critical analysis of the available literature and research, this study aims to shed light on the potential role of Forensic Jyotish in enhancing criminal investigations while acknowledging the need for rigorous scientific validation and interdisciplinary collaboration.

Keywords: Forensic Jyotish, Vedic Astrology, Criminal Investigations, Astrological Analysis, Planetary Positions, Suspect Identification, Behavioral Profiling, Motive Determination, Case Studies, Scientific Validity, Subjectivity, Interdisciplinary Collaboration.

PPA03

IMPORTANCE OF FORENSIC EXPERT AT CRIME SCENE- AN OVERVIEW

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Abstract

Forensic Medicine expertise is pivotal in death investigations. It starts with body examination and collection of trace evidences at the crime scene and yield through history, physical examination, forensic science laboratory tests and opinion-in short, the broad component of a doctor's management of the deceased. The key goal is to provide objective to find the cause, time and manner of death for assessment by the criminal justice system. In homicide, suspected homicide and other suspicious or obscure cases, the forensic expert should visit the crime scene of the death before the body is removed. Localized practice differ but any doctor claiming to be a forensic medicine expert should always make him available with the police to the place of the death. In many autopsy cases, the crime scene investigation is more important than the postmortem examination. A thorough investigation of the crime scene leads to the proper opinion regarding the cause and manner of death prior to the postmortem examination. The present article highlighting the importance of forensic experts at crime scene, where they can advise the actual facts for criminal justice system some of these facts may disappear when body moved for postmortem examination and guiding the tips for telling crime scene investigation applying their expertise.

Keywords: Postmortem, Crime scene, Homicide, Judicial.

PPA04**CORRELATION OF HEIGHT WITH FOOT LENGTH –A CROSS SECTIONAL STUDY AMONG INDIGENOUS KHASI POPULATION LIVING IN AND AROUND SHILLONG**

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North Eastern Institute of Ayurveda & Homoeopathy, Shillong

Abstract

Identification is the cornerstone of any forensic investigation upon which whole investigation rely. Identification become difficult when only fragmented parts of body is recovered. Stature is an important data of identification, when other parameters are not readily available. Stature can be measured if length of the foot is known as shown by different studies. In this present study attempt has been made to find out how foot length is correlated with stature in both sex among Indigenous Khasi Tribal Population living in and around Shillong. In this study 85 female and 75 Male of age group 18yrs to 50 yrs were recruited and their height and foot length were measured after getting written consent. The correlation coefficient for Female height and left foot length was found to be 0.53 with regression formulae derived as $Ht=2.35LFL+100$. The correlation coefficient for male height and left foot length was found to be 0.57 with regression formulae derived as $Ht=Ht=3.86LFL+70.57$.

Keywords: Identification, Stature, Height, Foot Length, Correlation.

PPA05

UNVEILING CLUES BENEATH THE SURFACE: PHYSICOCHEMICAL CHARACTERIZATION OF SOIL SAMPLES FOR FORENSIC CRIME SCENE INVESTIGATION

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Abstract

Forensic soil analysis plays a crucial role in crime scene investigation, aiding in the identification and linking of suspects to crime scenes. Soil is a complex matrix that contains a wide range of physicochemical properties, making it a valuable source of evidence for location determination and individualization. This research provides a comprehensive database of the physicochemical properties of soil samples for forensic purposes, with a particular focus on their significance in crime scene investigation and location identification. A total of 60 soil samples (100 grams) from 6 districts (10 different locations from each district) of Haryana with Geo-tag locations were collected. Various analytical techniques such as atomic absorption spectroscopy, flame photometry, etc were used to observe 19 soil properties, including mineralogy, elemental composition (Calcium, Sodium, potassium, Iron, Manganese Zinc Copper), organic matter content, colour, texture, and pH. The data collected through these techniques contributes to building a soil database that can be used as a reference in forensic analyses, ultimately enhancing the accuracy and reliability of soil-based evidence in criminal investigations.

Keywords: Soil Analysis, Crime Scene Investigation, Location Identification, Soil Database, Atomic Absorption Spectroscopy.

PPA06

DEVELOPMENT OF LATENT FINGERPRINT USING COPPER DOPED ZINC SULPHIDE NANOPARTICLESTania¹, Karamjit Singh², Mukesh Kumar Thakar³¹Senior Research Fellow, ³Professor, Department of Forensic Science,
Punjabi University, Patiala²Assistant Professor, Department of Physics, Punjabi University, Patiala**Abstract**

Latent Fingerprints are the most common type of evidence found at a variety of crime scenes. As these fingerprints are not visible to the naked eye, they are required to be developed by techniques including mechanical and chemical methods. These techniques are also dependent on the surface porosity, i.e., if a surface is porous or non-porous. Those techniques include optical detection (absorption, reflected diffusion and luminescence), physical methods (powdering, small particle reagent and vacuum metal deposition) and chemical methods (Ninhydrin, DFO, Silver nitrate, iodine fuming and cyanoacrylate). Recently, nanotechnology is also being used to develop the fingerprint and enhance the already-developed fingerprint. Nanotechnology is providing a lot to almost every field of science, including physics, medicine, engineering, chemistry and more. Nanoparticles are also being used for developing fingerprints, specifically latent fingerprints. Most of the nanoparticles used for latent fingerprints are categorized under II-VI semiconductor nanoparticles. These nanoparticles exhibit structural, optical, luminescence and photoconducting properties very different from their bulk counterparts. Nanoparticles are employed to develop fingerprints as they enhance the latent prints better than the traditional method of latent fingerprint development. Semiconductor nanoparticles due to their size tunable physical and chemical properties have attracted great interest. In the present paper, an attempt has been made to study the development of latent fingerprints using Copper-doped Zinc Sulphide [$Zn_{1-x}Cu_xS$ ($0 \leq x \leq 0.1$)] nanoparticles. Polyvinylpyrrolidone (PVP) capped $Zn_{1-x}Cu_xS$ ($0 \leq x \leq 0.1$) nanoparticles have been synthesized using a facile chemical co-precipitation method. The crystallographic characterization of synthesized nanoparticles has been done using the powder X-ray diffraction method (XRD), whereas morphological and topographical characterization have been done using scanning electron microscopy (SEM). Synthesized nanoparticles have very high luminescence quantum yield, which makes these materials a suitable candidate for the development of latent fingerprint development.

Keywords: Latent Fingerprints, Nanoparticles, ZnS: Cu, Crystallography, Luminescence.

PPA07

A SYSTEMATIC REVIEW ON GREEN SYNTHESIS OF NANOPARTICLES FOR LATENT FINGERPRINT DEVELOPMENT

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Abstract

The advancement of forensic science relies heavily on the ability to effectively visualize latent fingerprints, which are crucial for criminal identification and investigation. Traditional fingerprint development techniques often involve chemical reagents that are hazardous, costly, and environmentally damaging. In light of these challenges, there has been a growing interest in the green synthesis of nanoparticles using plant waste materials as an innovative and sustainable alternative. This review paper comprehensively examines the current state of research on the green synthesis of nanoparticles for latent fingerprint development, emphasizing the utilization of plant waste. The review explores various types of plant waste, such as fruit peels, leaves, and stems, highlighting their potential as natural reducing and stabilizing agents in nanoparticle synthesis. The biochemical mechanisms underlying the reduction process and the properties of the resulting nanoparticles are discussed in detail. Characterization techniques, including UV-Vis spectroscopy, X-ray diffraction (XRD), and electron microscopy (SEM and TEM), are evaluated for their effectiveness in confirming the size, morphology, and crystalline nature of the synthesized nanoparticles. A critical analysis of the application of these biogenic nanoparticles in fingerprint development is provided, with a focus on their performance across different substrates such as glass, metal, and plastic. Comparative studies reveal that nanoparticles derived from plant waste offer enhanced visualization of fingerprint ridges with improved contrast and detail, outperforming some conventional methods. The review also addresses the environmental and economic benefits of using plant waste, underscoring the alignment with green chemistry principles and the potential for cost savings in forensic laboratories. Challenges and limitations in the current research are identified, including variability in plant waste composition and the need for standardization in synthesis protocols. Future directions are proposed, emphasizing the need for further optimization of synthesis processes, exploration of diverse plant waste sources, and extensive field testing to validate the practical applicability of this technology. In conclusion, the green synthesis of nanoparticles from plant waste presents a promising and sustainable approach for latent fingerprint development. This review highlights the dual benefits of environmental sustainability and forensic efficacy, advocating for continued research and development in this innovative field. The adoption of plant waste-derived nanoparticles could revolutionize fingerprint development techniques, making them more eco-friendly and accessible worldwide.

Keywords: Nanoparticle, SEM, TEM, XRD, Green Synthesis, Fingerprint Development, Eco-Friendly.

PPA08

THE ROLE OF FORENSIC SCIENCE AND TECHNOLOGY IN INDIAN CRIMINAL JUSTICE ADMINISTRATION: A SOCIO-LEGAL STUDY

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Abstract

This paper investigates the transformative role of forensic science and technology in the Indian criminal justice system, emphasizing a socio-legal perspective. The introduction outlines the increasing importance of forensic methodologies such as DNA profiling, fingerprint analysis, digital forensics, and their admissibility in modern criminal investigations. The review of literature highlights global advancements and challenges in forensic science, drawing comparisons to the Indian context and identifying gaps in infrastructure and legal frameworks. Data collection involved an extensive review of legal cases, forensic reports, and policy documents, complemented by interviews with law enforcement officials, forensic experts, and legal professionals. The methodology adopted a mixed-methods approach, combining qualitative and quantitative analysis to assess the effectiveness and integration of forensic technologies in the criminal justice process. The study's results reveal that while forensic science significantly enhances the accuracy and reliability of investigations, its application in India is hindered by inadequate infrastructure, limited access to advanced technologies, and insufficient training for law enforcement and judicial officers. Case studies demonstrate the potential of forensic evidence in securing convictions and exonerations, underscoring the need for standardized protocols and ethical guidelines. In conclusion, the research underscores the necessity for comprehensive reforms in India's forensic science landscape. It advocates for increased investment in forensic infrastructure, policy reforms to streamline the use of forensic evidence in courts, and continuous professional development for relevant stakeholders. These measures are crucial for fully leveraging forensic science to strengthen the rule of law and ensure equitable justice in India.

Keywords: Forensic Science, Criminal Justice, India, DNA Profiling, Digital Forensics, Legal Frameworks, Socio-Legal Analysis, Evidence Admissibility, Judicial Reforms, Law Enforcement Training.

PPA09

**HAND ANTHROPOMETRY FOR FORENSIC IDENTIFICATION AND
SEX ESTIMATION IN THE HARYANVI POPULATION**Dr. Kanika Chhikara¹¹Assistant Professor, SGT University**Abstract**

Introduction: Hand biometry involves measuring and analysing unique physical characteristics of the hand for identification and forensic purposes. The hand's unique morphology and individual variations make it an effective biometric identifier, useful for personal identification and linking individuals to crime scenes. The shape and size of the hand, determined by genetics and developmental processes, remain consistent throughout a person's life, making them reliable and difficult to alter. However, in India, such databases are limited, and population variation can impact the accuracy of hand biometric identification. Combined with other forensic techniques, hand biometry enhances the accuracy and reliability of personal identification in investigations.

Aims and Objective: This study aims to analyse the sexual dimorphism and discriminant functions for sex estimation from the hand in the adult Haryanvi population.

Materials and Methods: A total of 26 hand variables (left and right side) were measured on 113 males and 102 females with the help of vernier callipers. SPSS 21.0 was used for statistical analysis. Student's T-test showed a significant difference between males and females.

Results: The statistical analysis revealed high significant differences between the sexes. Discriminant function analysis revealed a sex classification accuracy of 98.1% accuracy using 7 variables.

Conclusion: The findings of this research demonstrate that hand variables could be used to estimate sex. It is used for forensic identification, especially in cases involving mutilated or decomposed remains from mass disasters or other incidents. The results of the present study can be used in different forensic scenarios for sex estimation as well as in clinical and anthropological settings.

Keywords: Hand Anthropometry, Forensic Identification, Sex Estimation, Population.

PPA10**COMPUTER FORENSICS IN THE AI ERA: A CRUCIAL NEED FOR IT AND TECHNOLOGY COMPANIES**

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Abstract

In today's rapidly advancing era of artificial intelligence (AI), the importance of computer forensics within IT and technology companies has become critical. Computer forensics involves collecting, analyzing, and legally reporting on digital data, playing a pivotal role in maintaining the integrity, security, and compliance of digital infrastructures. AI has transformed various aspects of business operations, enhancing efficiency, decision-making, and customer engagement. However, it also introduces complex challenges related to cybersecurity, data privacy, and regulatory compliance. As cyber threats become more sophisticated, robust forensic capabilities are essential for investigating and mitigating security breaches. Computer forensics provides the necessary tools and methodologies to uncover the intricacies of cyber-attacks, trace malicious activities, and recover lost or compromised data. Moreover, the integration of AI into business processes requires adherence to stringent data protection regulations like GDPR and CCPA. Computer forensics ensures compliance by enabling thorough investigations into data breaches and unauthorized access, helping companies avoid penalties and protect their reputation. In AI-driven environments, computer forensics also supports the validation and verification of AI systems. By examining data provenance, usage, and outcomes, it ensures transparency and accountability in AI algorithms, fostering trust and maintaining ethical standards. In summary, the need for computer forensics in IT and technology companies is underscored by the increasing reliance on AI. It plays a vital role in safeguarding digital assets, ensuring regulatory compliance, and promoting ethical AI use. As the digital landscape evolves, computer forensics will remain integral to technology companies' resilience and trustworthiness.

Keywords: Artificial Intelligence, Computer Forensics, Digital Data, Cyber Threats, Data Breach.

PPA11

DRONES IN CRIME SCENE ANALYSIS AS NEW FORENSIC FRONTIERSDr. Twisha Shah¹, Dr. Kapil Kumar²¹Teaching Associate, Department of Biochemistry and Forensic Science, Gujarat University, Gujarat, India²Associate Professor, Department of Biochemistry and Forensic Science, Gujarat University, Gujarat, India**Abstract**

As unmanned aerial vehicles (UAVs), commonly known as drones, continue to proliferate across industries, their potential for forensic applications garners increasing attention. This paper delves into the intersection of UAVs technology and forensic science, examining the diverse roles as aerial vehicles that plays in enhancing investigative capabilities and facilitating evidence collection and analysis. UAVs forensic is a multidisciplinary field that combines knowledge of aviation, digital forensics, cyber security, and legal considerations. Professionals in this field may work with law enforcement agencies, regulatory bodies, private organizations, and legal experts to ensure a thorough and accurate analysis of drone-related incidents. The research provides evolution of drone technology in forensics and the data they stored including flight logs, images, and sensor data. After appropriate literature review, it was revealed that adequate work has been done related to data retrieval from drones fitted with proprietary flight controllers such as DJI drones, parrot drones etc, using various paid and unpaid software and tools. It was also explored that very limited work has been done in the field of drone forensics on drones fitted with open-source firmware flight controllers using various open source forensic and aviation tools. The methodological approach adopted for retrieving data from drones coupled with various open-source forensic and aviation software and tools, yielded successful outcomes. This included the accurate identification and attribution of the drone, successful forensic imaging of both external memory cards utilised in the flight controller and camera. The work provides an overview of UAVs technology in forensic applications for crime scene documentation, accident reconstruction, search and rescue operations, and disaster response, collection, preservation, analysis, and presentation of digital evidence related to drones. In conclusion, it emphasizes the transformative potentials of drone technology in advancing forensic science and enhancing investigative capabilities.

Keywords: Forensic Applications, Cybersecurity, Unmanned Aerial Vehicles (UAVS), Digital Evidence Analysis, Crime Scene Documentation, Forensic Imaging.

PPA12

SMART WATCH AS FORENSIC TIMEKEEPERS IN POST-MORTEM INVESTIGATIONS

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Abstract

This study explores the untapped potential of smart watch data in enhancing post-mortem interval (PMI) estimation accuracy within forensic investigations. We analysed data from 150 smart watch, comparing PMI estimates derived from smart watch data against traditional forensic methods. Our innovative approach centered on the extraction and analysis of smart watch data using a range of open source forensic tools. These tools were employed to access and retrieve critical physiological parameter data such as heart rate, skin temperature, and accelerometer readings from various smart watch brands having android OS. The extraction process proved challenging, with success rates varying from 70% to 95% depending on the device and tool combination. Our findings indicate that smart watch-derived data, particularly heart rate cessation and skin temperature decline, can significantly improve PMI estimation precision. As wearable technology continues to evolve, its role in forensic investigations is likely to become increasingly significant, offering unprecedented insights into the critical hours surrounding a person's death.

Keywords: Smart Watch, Evidence, Post-Mortem Interval, Forensic Tools, Investigation.

PPA13**AGE ESTIMATION THROUGH ANALYTICAL QUANTIFICATION OF MELANOSOME IN ROOT HAIR FOLLICLE**Ridhi Khandelwal¹¹Junior Scientific Officer, Sherlock Institute of Forensic Science, India**Abstract**

Hair evidence is crucial in determining ethnicity, sex, species, and age. Melanin is a pigment that is present in the skin and hair of humans. The concentration of pigment reduces as age increases. The aim of this study is to determine the age of an individual by analysing the existence and quantity of melanosomes in the hair root follicle using FTIR and UV spectrophotometer. A total of 105 samples from females of different age groups, ranging from 10-15 years to 41-45, were collected for the study. The isolation of melanosomes is followed by two processes: first, DMF degradation, and second, protein enzymatic degradation. The results are analysed using graphs derived from FTIR and U.V spectroscopy. The presence of melanosomes in hair samples from all age groups is shown by the FTIR wavelength range of 1000-1600. The concentration of melanosomes in each sample from different age groups is evaluated using the Beer-Lambert rule. The analysis of the results reveals that the distribution of melanosomes in the hair root follicle progressively increases from ages 10 to 25, and then remains consistent until the age of 35. Upon reaching the age of 35, there is a decrease in the number of melanosomes, with reduced levels detected in those between the ages of 36 and 45 years. This study has significant forensic importance as it helps to narrow down the search for a suspect by estimating the age range of the perpetrator through the analysis of hair evidence collected at the crime scene.

Keywords: Hair, Melanosome, UV Spectroscopy, FTIR, Age Estimation.

PPA14

A REVIEW ON FINGERPRINTING METHODS: TRADITIONAL VS. DIGITAL

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Abstract

Fingerprinting methods have evolved significantly, with traditional and digital approaches offering distinct advantages and limitations. Traditional fingerprinting methods, such as ink-and-roll techniques and manual analysis, have been the cornerstone of forensic identification for over a century. They rely on physical impressions and visual comparison by experts, providing a time-tested means of verifying identity but often with limitations in accuracy and efficiency. In contrast, digital fingerprinting employs advanced technologies, including electronic capture devices and automated fingerprint identification systems (AFIS), to capture, analyse, and store fingerprint data with greater precision and speed. Digital methods enhance the ability to match and retrieve fingerprints from large databases, improving both the accuracy and accessibility of identification.

Keywords: Fingerprints, Automated Identification, Forensic Evidence, Database, Live Scanning, Admissibility.

PPA15

IMPLEMENTING ATR-FTIR SPECTROSCOPY AND CHEMOMETRICS FOR THE FORENSIC IDENTIFICATION AND DIFFERENTIATION OF SEXUAL LUBRICANTS AND THEIR TRACES

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Abstract

Sexual lubricants are likely to be encountered at crime scenes due to the wide availability and variability of the products. These lubricants found in sexual assault cases may help supplement biological evidence or be the primary evidence where there is a lack of DNA evidence. The discrimination of sexual lubricants will help assess the potential contact between the victim and suspect. In India, locally made sexual lubricants based on Ayurvedic or Unani formulations that target local muscular or nervous tissue weakness are also marketed. These products claim to increase male sexual performance. Therefore, it is necessary to discriminate this from other formulations available in the market. In this study, an analysis of a total of 43 products of condom lubricants, bottled sexual lubricants and personal hygiene products was carried out to evaluate their variability and discrimination potential. The sample set also included Ayurvedic and Unani products manufactured in India in order to assess their inherent chemical diversity. ATR-FTIR spectroscopy was used to analyze the samples, and the spectra were then visually examined and interpreted using chemometrics. Chemometric classification was done using LDA and SVM in a two-stage classification process: identification of the type of product and a brand-level classification. The combination of LDA and SVM helped to discriminate the samples further in an objective manner. Evaluation of how these products can be linked to their sources is also needed when they are encountered as traces in various substrates. The findings of the substrate study indicated that the type of substrate, lubricant, and storage period may affect the discrimination.

Keywords: Condom, Sexual Lubricants, Discrimination, ATR-FTIR Spectroscopy, Chemometrics.

PPA16

**A SHIFT FROM DESTRUCTIVE TO NON-DESTRUCTIVE TECHNIQUES
IN ADVANCEMENT OF FIRE DEBRIS ANALYSIS: TOWARDS
PRECISION AND PRESERVATION**Vaibhav Kumar¹, Ankit Srivastava², Tanurup Das³¹Research Scholar (UGC-JRF), School of Forensic Sciences, WBNUJS, Kolkata²Associate Professor and Co-ordinator, School of Forensic Sciences, WBNUJS, Kolkata³Assistant Professor, School of Forensic Sciences, WBNUJS, Kolkata**Abstract**

Fire debris analysis plays a crucial role in forensic science, aiding in the determination of the presence and type of burnt materials and accelerants used in suspicious fires. Traditional methods often rely on destructive analytical techniques such as gas chromatography-mass spectrometry (GC-MS), which, while effective and being considered as ‘gold standard’ for volatile organic compounds, consume portions of the evidence that cannot be recovered or re-analysed. Recent advancements, however, have seen a shift towards non-destructive approaches, enhancing the preservation of evidence and enabling multiple analyses of the same sample. Techniques such as Fourier-transform infrared spectroscopy (FTIR), Raman spectroscopy, and nuclear magnetic resonance (NMR) spectroscopy have demonstrated considerable promise by providing the information like molecular composition and chemical compound identification without altering the samples. The integration of advanced imaging techniques such as hyperspectral imaging captures a wide spectrum of light beyond the visible range, enabling the identification of various substances based on their spectral signatures, provide detailed spatial and compositional information about fire debris samples. Computational methods including machine learning (ML) also facilitate the development of predictive models and spectral libraries, which can be continually refined as new data is acquired. Machine learning algorithms can process and interpret complex spectroscopic data, improving the accuracy and speed of accelerant identification. This paper reviews the advancements in analytical techniques for fire debris analysis with special focus on ignitable liquid residues (ILRs) analysis, highlighting their forensic applications and potential to transform current practices.

Keywords: Fire Debris, ILRs, GC-MS, FTIR, Raman Spectroscopy, Machine Learning.

PPA17**THE PSYCHOLOGICAL EFFECTS OF SEXUAL HARASSMENT**Jogiparthi Shravya¹¹Regional Head of SIFS, Hyderabad**Abstract**

Women are the makers who are selfless and extend their helping hand to everyone. In Indian contrast, from the ancient days to the present-day women of our country have faced many challenges in every phase of their lives. She is a warrior who will be fighting every second against all odds and her struggle starts right from the mother's womb (Infanticide and Foeticide). One such challenge in the present-day society is Sexual harassment which is an alarming issue of the Nation. Irrespective of age and time women are facing harassment by their perpetrators. The current paper discusses about victims of sexual harassment, their psychological and general impacts, victim's perception towards men and society and the reporting rate of the incident to the police. It also focuses on how the harassment has occurred, the areas prone for harassment, the age group of victims as well as the perpetrators and measures to prevent sexual harassment. The sample size is of 200 women from Hyderabad city. The primary data is collected through questionnaire method consisting of 24 open-end questions. The data coding is done using Microsoft excel and presented in the tabular form and bar diagram. This study reveals that victims of sexual harassment are going through depression, stress, anxiety, even who encountered suicidal thoughts. Since they are the victims of sexual harassment, they have developed negative attitude towards the men and society. Due to the social stigma most of the victims didn't report the incident to the police. Hence the researcher has planned for the intervention through launching an app or a webpage for victims of sexual harassment which would help the victims to share their feelings without disclosing their identity. It may also help the law enforcement agencies to identify and trace the perpetrator and even it cautions general public about such kind of inhumane acts.

Keywords: Sexual Harassment, Psychological Impacts, General Impacts, Education Qualification, Laws.

PPA18

**RECENT ADVANCEMENT IN KEY RESTORATION BY CHEMICAL
ETCHING METHODS**Priya¹¹Intern, Sherlock Institute of Forensic Science, India**Abstract**

Forensic science is multifascinated and multidimensional field it composes of scientific discipline that carries range of expertise. Forensic science is major instrument for the detection and investigation of crime and the administration of justice as well as providing crucial information about the evidence found at crime scene. Any object that found at scene provide information about the link between victim, crime and perpetrator is considered as evidence found at crime scene. As we all know different type of metal sheets and keys and vehicles having their serial number that is their identification number that is unique to each other. In particular firearm, vehicle and particular metal item the serial number is mostly erased or obliterated with the intentions of hiding the identity of it. So the main goal of this paper is when once the serial number is erased then how will it restored. The culprit use various technique or method in order to hide or obliterate the metal surface. The surface of metal is compose of so many layer hence when someone write deliberately something on metal sheet so the depression induce in the layer present beneath it. Generally the upper surface of metal sheet is damage when culprit scratch it with sharp object therefore second layer is use to restoration and to gather the alphabetical and numerical data for investigation purpose. If there is case when all layers of metal sheet is damaged or destroys then recovery of serial number is bit difficult to disclose.

Keyword: Metal Sheet, Crime Scene, Serial Number.

PPA19

DEVELOPMENT OF LATENT FINGERPRINTS ON ORGANIC SURFACES: A COMPREHENSIVE STUDY

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Abstract

Fingerprints are among the most common types of evidence found at crime scenes, with latent prints—those not visible to the naked eye—being particularly prevalent. During the commission of a crime, perpetrators may unknowingly leave behind residues on objects they touch, including fruits and vegetables. The detection and development of these latent prints are crucial in crime scene investigations. However, developing prints on organic surfaces like fruits and vegetables is challenging due to their porous nature, varying moisture levels, and irregular textures, which can affect the adhesion of fingerprint residues and powders. This study explores the effectiveness of both conventional (black, grey, and white powder) and unconventional (turmeric, maize flour, and henna powder) fingerprint powders in developing latent prints on various fruits (apple and banana) and vegetables (onion and tomato). The latent prints were developed at staggered intervals to assess the effect of time on print quality. The results highlight the potential of using both traditional and unconventional powders for latent fingerprint development on organic surfaces, providing valuable insights for forensic investigations.

Keywords: Fingerprints, Latent Prints, Fingerprint Powders, Unconventional Powders, Fingerprint Residues.

PPA20

**ARTIFICIAL INTELLIGENCE AND ITS ROLE IN FORENSIC
KARYOTYPING: A SYSTEMATIC REVIEW**Sachin Kumar Tripathi¹, Khyati Rao², Rajiv Ratan Singh³, Pradeep Kumar Yadav⁴²Scientific Officer, Sherlock Institute of Forensic Science, India**Abstract**

Introduction: One of the most important aspects of forensic investigations and genetic research is forensic karyotyping, which involves analyzing a person's chromosomes to find genetic anomalies and establish identification. The development of artificial intelligence (AI) technology offers a chance to improve and automate the forensic karyotyping procedure. This study examines the possible advantages and difficulties of artificial intelligence (AI) in forensic karyotyping. In forensic science, forensic karyotyping is essential for providing an accurate interpretation of genetic data for use in legal and investigative processes. It can offer useful details regarding genetic problems, such as chromosomal abnormalities or mutations, which can help with personal identification, paternity determination, or supplying proof in criminal investigations. **Aim:** To give a general review of how artificial intelligence is used in forensic karyotyping, evaluate its possible advantages, and address any relevant issues. By being aware of Artificial Intelligence's promise and limitations in this field, we may set the stage for its efficient integration into forensic practitioner. **Methods:** A database search we did to start the inquiry turned up 582 documents. There were 216 unique records left after duplicates were eliminated. 232 items were subsequently eliminated as a result of download problems. A final sample of 31 research was chosen from the 134 full-text papers that were evaluated (n=134), with 103 being eliminated owing to quality issues. **Result:** The use of artificial intelligence (AI) in forensic karyotyping has several advantages, including automated chromosomal analysis, quicker abnormality discovery, and increased uniformity. For a successful application, challenges such as a lack of labelled datasets and ethical issues must be resolved. **Conclusion:** By increasing productivity, precision, and uniformity, artificial intelligence has the potential to transform forensic karyotyping. While there are obstacles, continued study and cooperation amongst several fields might help you get through them. The ethical and appropriate use of AI in forensic karyotyping will improve forensic investigations, boost genetic research, and expand the use of genetics in the legal system.

Keywords: Artificial Intelligence (AI), Criminal Investigations, Forensic Karyotyping, Genetic Abnormalities, Genetic Profiles, Labelled Datasets, etc.

PPA21

AUTHENTICITY & FORENSIC SPEAKER IDENTIFICATION OF OLD-AGED MORPHED MALE AND FEMALE AUDIOS

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Abstract

With smartphones and other technology easily available, it is very easy for any individual to record the conversation and edit it using available softwares. For any digital recording to be admissible in a court of law, the forensic expert needs to authenticate the audio for tampering and later speaker identification is done. Morphing is one of the methods used to disguise and hide their vocal parameters so the identification becomes difficult. In this study, two different morphing software were used to convert the recorded audio into the old male and old female categories. For examination purposes, ACU Expert was used for authentication and identification. For Authentication, the analysis was done on the waveform and phase form parameters of the Authentication module. For the speaker identification auditory and spectrographic analysis was done. The four formant frequencies (F1, F2, F3, F4) of 20 clue words were done and interpreted based on guidelines given by the American Board of Recorded Evidence. The automatic method of Speaker Identification was also done using Phonexia Software. The results indicated that the auditory analysis gives significant results for speaker identification compared to the spectrographic or automatic method.

Keywords: Authentication, Morphing, Forensic Speaker Identification, Female Voice, Male Voice, Old Age.

PAPER PRESENTATION (STUDENT CATEGORY)

- ❖ **SPA-01 | Ashwin Edakkara**
From Chloroplast To Mitochondria: First Initiative Of DNA Barcoding Of Poisonous Plants In India
- ❖ **SPA-02 | Thayanithi C.A**
Advancements In Skull Superimposition Techniques For Forensic Identification
- ❖ **SPA-03 | Kamayani Vajpayee**
Understanding The Mechanism Of PCR Inhibition By Melanin
- ❖ **SPA-04 | Arundhati Pandit**
Role of Nanotechnology in the field of Crime Scene Investigation
- ❖ **SPA-05 | Shivani Tiwari**
Comparative study of Passive Pollen retention on Various Types of Fabrics
- ❖ **SPA-06 | Dr. Rahul Kaushik**
Completely calcified stylohyoid ligament with accessory hyoid bone - A rare case report
- ❖ **SPA-07 | Anuradha Sandhu**
Advanced Forensic Materials: Harnessing the Power of Smart Hydrogels
- ❖ **SPA-08 | Shubhangi Bisht**
Peel to Prints-(Exploring Natural Peels for Development of Latent Fingerprints)-A Review
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- ❖ **SPA-10 | Shalini Kushwaha**
A Comprehensive Review of Different Analytical Techniques used for Analysis of Dental Restorative Materials for Forensic Purposes
- ❖ **SPA-11 | Shudhanshu Mani Tripathi**
Forensic Perspective towards the Estimation of Time since Deposition of Semen and Saliva: An RNA Degradation Based Approach
- ❖ **SPA-12 | Sameeksha Dubey**
Examining Protein Profiles and Modifications to Complement DNA Evidence

SPA01

**FROM CHLOROPLAST TO MITOCHONDRIA: FIRST INITIATIVE OF
DNA BARCODING OF POISONOUS PLANTS IN INDIA**Ashwin Edakkara¹, Suchithra J S², Bhaskar Pandey³, Abhishek Singh⁴^{1,2,3,4} National Forensic Sciences University, Goa Campus Curti, Ponda, Goa**Abstract**

This study investigates the phylogenetic potential of a novel primer pair from COX1 gene to detect the most common poisonous plant species in India. A total of 50 available nucleotide sequences were analyzed for the phylogenetic assessment of poisonous plants. All the sequences were aligned using ClustalW and primer3 webserver was used to design the novel primer pair. Maximum likelihood tree was formed using Tamura-Nei model + Gamma Distribution (T92+G model) in MEGA 11. COX1 DNA barcode showed prominent results in differentiating the poisonous plants at family level with the accuracy of over 90%. Whereas the other commonly used DNA barcodes viz. ycf1, ITS1, rbcL, matK showed confidence level of less than 80% indicating COX1 as a prominent marker for poisonous plant identification. Conventional approach to identify the source of poison includes chemical and morphological analysis of the available sample which is time consuming and requires expert knowledge. To address this issue, DNA Barcoding proves to be the most efficient tool in differentiating poisonous plant species. In this study, five different DNA barcodes were evaluated for species identification of poisonous plant species. However, only one barcode COX1 proved to be more efficient and thus this is the first study to report COX1 DNA barcodes for species identification of poisonous plant. This may facilitate identification in case of degraded samples and needs further assessment on other plant species.

Keywords: DNA Barcoding, Poisonous Plants, Phylogenetics, COX1.

SPA02

ADVANCEMENTS IN SKULL SUPERIMPOSITION TECHNIQUES FOR FORENSIC IDENTIFICATION

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Abstract

In this review paper, I explored the advancements in skull superimposition techniques for forensic identification, focusing on recent innovations and their practical applications. My primary objective was to analyse how these advancements have enhanced the accuracy and reliability of forensic identifications. I began by conducting a comprehensive literature review, which allowed me to identify key developments in the field, such as the integration of 3D imaging technologies, improved algorithmic approaches, and the utilization of machine learning. I then evaluated various software tools commonly used in skull superimposition, assessing their effectiveness and accuracy based on specific criteria including user-friendliness, processing speed, and landmark detection accuracy. My findings indicated that while some tools excelled in precision and ease of use, others required significant manual input, highlighting the need for further refinement and standardization in the field. Furthermore, I selected and analysed three case studies that illustrated the practical application and validation of these advanced techniques. These case studies, drawn from diverse forensic scenarios, demonstrated the real-world implications of employing enhanced skull superimposition methods. I documented the methodology applied in each case, noting improvements in identification outcomes, and discussing the challenges encountered. Throughout this review, I aimed to provide a comprehensive overview of the current state of skull superimposition techniques, offering insights into both their strengths and areas needing improvement. I concluded that while significant progress has been made, ongoing research and development are crucial to address existing limitations and to further enhance the reliability and accuracy of forensic identifications using skull superimposition. This paper underscores the importance of continuous innovation and collaboration within the forensic science community.

Keywords: Skull Superimposition, 3D Imaging, 3D Photogrammetry, Forensic Identification, Digital Imaging Technologies, Skeletal Analysis, Automated Identification.

SPA03**UNDERSTANDING THE MECHANISM OF PCR INHIBITION BY
MELANIN**

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Abstract

Melanin, a ubiquitous biological pigment, inhibits Polymerase Chain Reaction (PCR) and is frequently encountered in forensic cases involving violent crimes and sexual assaults. Despite its forensic significance, the precise mechanism of melanin's inhibitory action is inadequately understood. This study investigates how melanin binds within the active site of Taq polymerase, hypothesizing that such binding structurally inhibits the enzyme's function in PCR assay. We conducted molecular docking studies to elucidate melanin's binding mode within the Taq polymerase pocket and performed molecular dynamics (MD) simulations on docked complexes to understand binding behavior. Taq polymerase crystal structures used included 1TAQ (apo), 3KTQ (DNA and Mg²⁺ bound holo form), and modified 3KTQ models (DNA removed and both DNA and Mg²⁺ removed). Initial docking suggested melanin interacts with key catalytic residues within the binding pocket. However, MD simulations revealed differential binding dynamics across structural models, with higher variations in melanin poses in apo and holo forms, indicating weak binding. Consistent interactions were observed with residues GLU615, PHE667, and TYR671 in the finger region, which are crucial for catalytic activity and nucleotide recruitment during the elongation step. Our findings suggest melanin inhibits Taq polymerase activity by structurally interfering with the enzyme's functional machinery in the finger sub-domain. These insights into melanin-based inhibition of PCR are significant for forensic science, where melanin-rich samples are common. Understanding this mechanism facilitates developing strategies to counteract melanin's inhibitory effects, enhancing the accuracy and reliability of PCR-based analyses in criminal investigations.

Keywords: Melanin, PCR Inhibitor, Taq Polymerase, Molecular Docking, Molecular Dynamics Simulations, Forensic.

SPA04

FROM MINUTE TO MEANINGFUL: NANOTECHNOLOGY'S ROLE IN CRIME SCENE INVESTIGATION

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Abstract

Crime Scene Investigation (CSI) relies heavily on meticulous collection, analysis, and interpretation of evidence. Traditional methods, while valuable, often struggle with miniscule evidence traces. Nanotechnology, with its manipulation of matter on an atomic level, researchers are devising techniques to detect and analyse evidence in ways once unimaginable. From identifying minute particles of explosives to decoding complex chemical signatures, nanotechnology is illuminating the dark corners of crime scenes, offering a glimpse into the unseen events that transpired. It is not just an incremental improvement; it is a paradigm shift that holds the key to breakthroughs in Forensic Science.

Keywords: Nanotechnology, Crime Scene Investigation (CSI), Evidence, Analysis, Tools.

SPA05

**COMPARATIVE STUDY OF PASSIVE POLLEN RETENTION ON
VARIOUS TYPES OF FABRICS**Shivani Tiwari¹, Dr. Vineeta Saini²

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Abstract

Forensic palynology, the study of pollen and spores as crime evidence, is a valuable but underexplored field due to the labor-intensive process of collecting and analyzing these minute particles. Pollens are considered a "secret weapon" for investigators since their microscopic size makes them difficult for criminals to detect and remove, thereby enabling the linkage of a suspect to a crime scene. Pollen and spores can provide specific location information and contribute to Locard's exchange principle. Due to their unique features worldwide, pollen evidence plays a crucial role in solving mysterious crimes. We investigate the relative quantity of pollen retained on garments after a period of simulated mild or severe use using pollen and fabric attributes. A total of ten types of fabrics—Brocade, Rubia Cotton, Velvet, Cotton Satin, Synthetic, Art Silk, Tericot, Satin, Dobby, and Corduroy—were placed at five different locations with wild angiospermic plants. The fabrics were left near flowering plants for 2-3 days. Pollen collection involved gently brushing the fabric over a clean glass surface with a soft brush. Microscopic analysis was performed to identify the types of pollen grains on each fabric. Different fabrics exhibit varying levels of pollen grain retention. Velvet exhibited the highest pollen retention across all locations, followed by wool and corduroy. Synthetic, Art Silk, Tericot, and Dobby displayed moderate retention, while Brocade, Rubia Cotton, Cotton Satin, and Satin showed the least retention. Pollen visibility varied with fabric color and light conditions, with dark fabrics making observation easier. The texture of pollen grains influenced their adherence, with rough-textured pollens adhering more effectively. Velvet, wool, and corduroy showed the highest retention due to their texture, while smoother fabrics like Brocade and Satin retained less pollen. The texture of both the fabric and pollen grains themselves affects retention rates.

Keywords: Forensic Palynology, Crime Scene Investigation, Pollen Grains, Pollen Retention, Fabric Surfaces.

SPA06

COMPLETELY CALCIFIED STYLOHYOID LIGAMENT WITH ACCESSORY HYOID BONE - A RARE CASE REPORT

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Abstract

Background: Hyoid bone is a U-shaped bone in the neck originating from the 2nd and 3rd pharyngeal arches. It is situated at the root of the tongue in the front of the neck and between the lower jaw and the largest cartilage of the larynx, or voice box. Stylohyoid complex originates from 2nd pharyngeal arch and consists of styloid process, stylohyoid ligament and lesser cornu of the hyoid bone. The ambivalence in determining the proportion of contribution of pharyngeal arches leads to the diffidence in manifesting the actual embryological origin of the hyoid bone. **Case History:** In this case report, we present a rare case of completely calcified bilateral stylohyoid ligament attached to the lesser cornu of an accessory hyoid bone which was present just below the mandible bone. The case is a good example of extreme development of the stylohyoid complex, which could cause severe pain and significantly restricted head and neck movement. **Result and Conclusion:** Congenital anomaly leading to anatomical variation of hyoid bone can be asymptomatic but may manifest as dysphagia, neck pain, breathing difficulties and hindrance in the surgical interventions. Further research and studies in the field of embryological origin of hyoid bone can resolve this dubiety.

Keywords: Hyoid Bone, Congenital Malformation, Accessory, Pharyngeal Arches, Autopsy.

SPA07

ADVANCED FORENSIC MATERIALS: HARNESSING THE POWER OF SMART HYDROGELS

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Abstract

The concept of smart hydrogels in forensics is an emerging field that integrates sustainable practices into investigative methodologies. This development is driven by the necessity to prepare advance materials for future-oriented forensic science strategies. The initiative, already successful in several domains, seeks to anticipate and counteract sophisticated criminal behaviour, enabling law enforcement to proactively address potential threats. Current societal challenges require concerted efforts from researchers and forensic experts to develop, produce, and characterize innovative polymeric materials for immediate trace detection. Polymer science has facilitated the exploration of various novel polymeric materials, leading to the creation of unique, fingerprinted products in forensic science. Hydrogels being 3-dimensional crosslinked network is highly tunable that can be made into green, biodegradable, bio renewable and non-invasive product for utilization in forensic domain. These hydrogels possess distinctive properties that make them highly suitable for a range of forensic applications. Their worth is highlighted in areas such as fingerprinting, trace evidence collection and detection, forensic ballistics, toxicology, forensic DNA, environmental forensics, and sensing technology. This study highlights the remarkable characteristics of these smart gels and their potential to solve various unresolved cases giving future analyst a budding area for integrating polymer chemistry in forensic sciences.

Keywords: Bio-Polymers, Forensics, Hydrogels, Polymers, Smart Gels.

SPA08

PEEL TO PRINTS-(EXPLORING NATURAL PEELS FOR DEVELOPMENT OF LATENT FINGERPRINTS)-A REVIEW

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Abstract

Fingerprints are an essential piece of evidence that are used to establish identities in criminal investigations. It is now essential to find and improve these fingerprints. The techniques for creating latent fingerprints have changed over the last century, incorporating both chemical and physical processes. Because of this, fingerprint investigation techniques are constantly evolving, necessitating extensive training and practice for individuals involved in laboratory and crime scene processing to guarantee their efficacy and safety (Worawong et al., 2016). Graphical ridge and valley patterns can be used to represent fingerprints. In the 2000s, fingerprints became the most commonly used biometric identifier due to their permanence and uniqueness. Consequently, the most widely used foundation for automated fingerprint verification is now the recognition of minute features. The ridge ending and ridge bifurcation were the most often utilized minutiae features for automated fingerprint verification.(Seong-whan lee et al., 2007)In order to properly identify their rightful owner, latent fingerprints must have distinguishable ridge characteristics. Presenting fingerprint evidence is important for legal proceedings and criminal case investigation processes.(Priyanka et al.,2022). This review looked into fingerprint powders out of leftover materials like lemon and egg peels. These environmentally friendly substitutes worked well on various types of surfaces, demonstrating their potential as long-term solutions for forensic analysis. (Rakesh Mia et al., 2023)According to the studies of finding with the usage of natural powder fingerprints were developed successfully using various powders. Egg shell powder proved to be the most effective natural powder in terms of fingerprint results. This review gives idea about use of waste material and lessens the need for artificial chemicals making forensic procedures more sustainable.

Keywords: Fingerprints, Latent Fingerprints, Investigation.

SPA09

GRAPHOLOGY

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Abstract

The study of handwriting and handwriting analysis - is now an accepted and increasingly used technique for the assessment of people in organizations. Handwriting analysis is an effective and reliable indicator of personality and behavior, and so is a useful tool for many organizational processes, for example, recruitment, interviewing and selection, team-building, counseling, and career planning. Graphology is brain writing - the handwriting comes directly from the writer in a uniquely personal and individual way, irrespective of how the person has been taught to write: an expert graphologist understands the styles of the different countries and languages and makes allowances for taught influences. Also largely irrelevant to the actual analysis is the content of the written text. The science of graphology uses at least 300 different handwriting features in its investigative approach. The graphologist's interpretation skill is in the psychological art of understanding the particular blend of handwriting features - an expert is able to see the writer step off the page.

Keywords: Handwriting, Graphology, Personality, Behavior, Graphologist.

SPA10

A COMPREHENSIVE REVIEW OF DIFFERENT ANALYTICAL TECHNIQUES USED FOR ANALYSIS OF DENTAL RESTORATIVE MATERIALS FOR FORENSIC PURPOSES

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Abstract

The aim of this paper is to explore the different instrumental techniques that have been used by the researchers to analyse the dental restorative materials for forensic purposes. The dental restorative materials are synthetic materials or components that can be used to repair and replace tooth structure. The major four groups of materials used in dentistry today are metals, ceramics, polymers, and composites. Determining a deceased person's identity is an important task in many forensic investigations. Under the situations such as cremation, intense fires, accidents involving accelerants, or mass disasters, the existence and persistence of the dental restorative materials needs to be demonstrated. Every dental restorative material has a distinct composition and a different heavy metal used to create a unique elemental fingerprint for the material which can aid in the identification. This distinct elemental composition allows the identification of brand. Literature suggests that spectroscopic methods, such as Infrared Spectroscopy (IR), Fourier Transform Infrared Spectroscopy (FT-IR), Raman spectroscopy, Ultraviolet and Visible Spectroscopy (UV-Vis), X-ray spectroscopy, and Mass Spectrometry (MS), are widely used in the investigation of the surface properties of dental restorative materials. The scanning electron microscopy with energy dispersive X-ray spectroscopy (SEM/EDS) has also been to analyse the dental restorations.

Keywords: Dental Restorative Materials, FT-IR, Raman Spectroscopy, Mass Spectrometry SEM/EDS.

SPA11

FORENSIC PERSPECTIVE TOWARDS THE ESTIMATION OF TIME SINCE DEPOSITION OF SEMEN AND SALIVA: AN RNA DEGRADATION BASED APPROACH

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Abstract

Time Since Deposition refers to the duration that has been passed since a particular type of evidence, such as biological or trace materials, deposited at a crime scene. In forensic science, determining the Time Since Deposition is a crucial aspect of crime investigation, as it provides essential input about the crime's timeline. Accurate determination of Time Since Deposition can significantly impact the reconstruction of the crime. It can also aid in determining Time since Death, the timeline of injury, and establishing the alibi in order to exclude or include evidence in a court of law. Biological fluids such as blood, semen, saliva, menstrual blood, vaginal fluid, and urine are frequently found in cases of murder, rape, and assault. These fluids degrade over time with the degradation rate varying depending upon the fluid and environmental conditions. Many researchers have studied the ageing of these biological fluids based on changes in their biochemical properties, influenced by various factors such as the nature of the substrate, the biochemical composition of the fluid itself, the health status of the donor, and, most important, the surrounding environments. Spectroscopic techniques have been used to determine the age of these biological fluids, but they have certain limitations as they were conducted in controlled environment. RNA marker-based research has been conducted for the ageing of bloodstain, semen, etc., in foreign countries with limited variation in climate conditions. However, this present study is focuses on the estimation of Time Since Deposition of semen and saliva based on RNA degradation in uncontrolled environmental conditions, using NanoDrop, and statistical analysis.

Keywords: Degradation, RNA, Saliva, Semen, Time Since Deposition.

SPA12

**EXAMINING PROTEIN PROFILES AND MODIFICATIONS TO
COMPLEMENT DNA EVIDENCE**Sameeksha Dubey¹, Anjali¹¹Intern, Department of Education, Sherlock Institute of Forensic Science, India**Abstract**

Forensic proteomics is a cutting-edge science that uses extensive protein analysis to handle various forensic difficulties, complementing traditional DNA-based approaches. Proteins' stability and abundance in biological samples make them important when DNA evidence is deteriorated, tainted, or inadequate. Advanced mass spectrometry methods make it easier to identify and characterize proteins and their post-translational changes, revealing important information about the biological condition and identity of persons engaged in criminal investigations. Proteomic analysis has several forensic uses, including identifying human remains, estimating post-mortem periods, and determining the reason and manner of death. Proteins taken from bones, teeth, and hair can provide valuable information about a person's age, gender, and perhaps lineage. Furthermore, examining protein breakdown patterns helps to estimate the period after death, which is an important component in forensic investigations. In violent crime cases, proteomic techniques may detect blood, sperm, saliva, and other body fluids, even in tiny amounts, using unique protein markers. Forensic proteomics also covers the examination of non-human proteins, which is essential in wildlife forensics and identifying animal species involved in illegal trade and poaching incidents. The resilience of proteins under varied environmental circumstances enables the examination of material exposed to hostile environments, increasing the scope of forensic investigations. Despite its intriguing premise, forensic proteomics confronts several hurdles, including the need for standardized techniques, large protein databases, and powerful bioinformatics tools for data analysis. Continued advances in mass spectrometry, sample preparation, and computer analysis are critical for overcoming these barriers and incorporating proteomics into standard forensic practice.

Keywords: Forensic Proteomics, Mass Spectrometry, Computational Analysis, Post-Translational Modifications.

POSTER PRESENTATION (PROFESSIONAL CATEGORY)

- ❖ **PPO-1 | Mohini Kumari Singh**
Comparative Analysis on Ridge Density in Both Thumbs of Population for Different Age Group
- ❖ **PPO-2 | Shrijoy Banerjee**
Haplogroup Study of the West Bengal Population: An Archaeological Approach from the Specs of Forensic Science
- ❖ **PPO-3 | Nisha Rani & Arti Yadav**
Estimation of age and sex from fingernail clippings by using ATR-FTIR spectroscopy coupled with chemometric interpretation
- ❖ **PPO-4 | Maheep Saxena**
Recent Trends in Hybrid Deep Learning Models for Malware Analysis: A Comprehensive Review
- ❖ **PPO-5 | Ayushi Arora**
Unraveling the Craniofacial Index: A Study on Western Uttar Pradesh Population of India
- ❖ **PPO-6 | Christy Susan Thomson**
Investigation and Examination of Fire-Related Cases: Patterns, Causes and Implications
- ❖ **PPO-7 | Muskaan Makhija**
Poroscopy in Forensic Science: A Detailed Overview
- ❖ **PPO-8 | Manju**
Forensic Analysis of Work-Related Patterns in Fingerprints and Palmprints Across Various Professions: A Comparative Study
- ❖ **PPO-9 | Kanika Gupta**
MIKC-Type MADS Domain Proteins: Morphological and Genetic Analysis of Inflorescence and Flower Development in Varieties of *C. Sativa*
- ❖ **PPO-10 | Dimple Bhatia**
Differentiation of Royal Bengal Tiger and Indian Leopard bones using ATR-FTIR spectroscopy: A forensic tool for wildlife conservation

PPO1

COMPARATIVE ANALYSIS ON RIDGE DENSITY IN BOTH THUMBS OF POPULATION FOR DIFFERENT AGE GROUP

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Abstract

Throughout an individual's life, fingerprints are one of the characteristics that remains unchanged. Fingerprint Ridge density is one of those aspects of fingerprinting technology which has uplifted the identification process in Forensic Science. Several studies on Ridge density have already determined it as one of the identification tools for Investigation by sex determination. However, the changes in ridge density over the period of increasing age with sufficient sample size is not yet studied and recorded in Mumbai, India. So, the present study aims to determine the variations in ridge density calculated for the thumbs of both hands for 5 different age groups viz., 1- Children (4-12), 2- Teenagers (13-19), 3 and 4- Adults (20-40; 40-60) and 5- Aged (60+) keeping the gender of the subjects in mind. The study consists of 300 subjects (150 males and 150 females) distributed equally amongst the above mentioned age groups. Fingerprint ridge density was acquired from a number of ridges over an area of 5 x 5 mm² based on the method of Acree. Our study slightly modified this method and that of the counting of ridge density portion described by Gutierrez-Redomero et al. In each square in the radial and ulnar region, ridges were counted from one corner to the diagonally opposite corner. After the ridge density calculation, statistical analysis between the age groups for both sexes was done with the help of the Independent T- test. The variation in ridge density amongst the age groups and in between the sexes was examined. It was observed that with the increasing age, there is an increase in Ridge density from children to teenagers and then decreases with advancement in age i.e., in adults and then in the aged population. It was also found that females have significantly higher fingerprint Ridge Density, i.e. finer ridge, than males for both radial and ulnar areas. This finding suggests that the fingerprint ridge density plays a relevant role in identification of a donor's age and gender from latent fingerprints that are otherwise of unknown origin.

Keywords: Fingerprint, Ridge Density, Age Determination, Thumbs, Indian Population.

PPO2

HAPLOGROUP STUDY OF THE WEST BENGAL POPULATION: AN ARCHAEOLOGICAL APPROACH FROM THE SPECS OF FORENSIC SCIENCE

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Abstract

Genetic population group of people sharing common ancestry are called a haplogroup. The groups are defined by the specific sets of genetic markers inherited from the common ancestor. They happen to be instrumental in understanding the family tree, evolutionary history, migration pattern and genealogy. Y-DNA and mtDNA Haplogroups are the major types of haplogroups which are of great importance in forensic investigation also. Since, Y chromosome is passed down from father to son and to his son, it establishes a direct connection among the male members across generations. On the other hand the mtDNA is inherited from the mother to offspring of both sexes. It links an individual to his maternal blood across generations who possess the same mtDNA. The population of West Bengal has witnessed several visitors across time and has been greatly influenced by their presence. Hence, it would be interesting to look for the traits present in this diverse population. This study shall reveal answers to questions on influence of foreign invasions in West Bengal by observing the presence of haplogroup markers depicting their ancestry and migration pattern. In addition to applications in genetic genealogy, it has utility in forensic archaeology also. Haplogroup study has been significant in solving cold cases and identifying unidentified human remains.

Keywords: Haplogroup – Y-DNA – mtDNA – Ancestry – Family Tree – Migration Pattern, Genetic Genealogy – Forensic Archaeology.

PPO3

ESTIMATION OF AGE AND SEX FROM FINGERNAIL CLIPPINGS BY USING ATR-FTIR SPECTROSCOPY COUPLED WITH CHEMOMETRIC INTERPRETATION

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Abstract

Fingernails can act as important forensic evidence as they can be a source of DNA that may link the victim or accused to the crime scene and may also contain traces of drugs such as cocaine and heroin, in regular users. Moreover, previous studies have shown that analyzing fingernails with various techniques can reveal important information, such as age and sex. In this work, ATR-FTIR spectroscopy with chemometric tools has been used to estimate the age and sex from fingernails by analyzing 140 fingernail samples (70 males, and 70 females) collected from volunteers aged between 10 and 70 years old. The amide bands obtained from spectra confirmed the presence of keratin proteins in the samples. PCA and PLS-R were used for the classification of samples. For sex estimation, samples were divided into four categories based on age groups, followed by the differentiation of sex in each group. Similarly, for age estimation, all samples were divided into two sets based on male and female followed by differentiation of age groups in each set. The result showed that PLS-R was able to differentiate fingernail samples based on sex in groups G1, G2, G3, and G4 with R-square values of 0.972, 0.993, 0.991, and 0.996, respectively, and based on age in females, and males with R-square values of 0.93 and 0.97, respectively. External validation and blind tests were also performed which showed results with 100% accuracy. This approach has proved to be effective for the estimation of sex and age from fingernail samples.

Keywords: Forensic Science, Age and Sex Assessment, Fingernails, Trace Evidence, Vibrational Spectroscopy, Chemometrics.

PPO4

RECENT TRENDS IN HYBRID DEEP LEARNING MODELS FOR MALWARE ANALYSIS: A COMPREHENSIVE REVIEW

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Abstract

In the modern digital world, we are all surrounded and dependent on digital devices, including Smartphone's, laptops, computers, IoT, CCTVs, and more. Artificial intelligence (AI) has revolutionized our lives in many ways in recent years, but it has also accelerated the rise of cybercrime. Therefore, Cyber security defense and understanding heavily depends on digital forensics. It involves carrying out thorough investigations into cyber problems, figuring out how attackers work, and providing evidence to judiciary. Before AI, people with less knowledge or those who were unaware could not commit technology related crimes; but now AI is able to provide precise information, and many people are using this information to commit crimes. Numerous reports regarding the COVID-19 pandemic till 2023 state that there has been a 400% increase in the cyber-crime realm, primarily in malware incidents. This entire situation arises because now people can design malware with the help of a few prompts by using AI. On the other hand, AI also makes malware more complex because AI automatically identifies vulnerabilities using existing datasets, which strengthens malware. Because of this, in recent scenarios, digital forensic experts have faced challenges in detecting malware. The primary challenges include the obfuscation and polymorphism techniques used by malware to evade detection, the encryption and packing methods that hinder reverse engineering, and the lack of comprehensive datasets for training machine learning models. Additionally, the high computational cost and complexity of deep learning models pose significant barriers to their widespread adoption in real-time analysis environments. To address these challenges, future advancements are focusing on hybrid deep learning models that combine the strengths of various machine learning approaches. These models leverage convolutional neural networks (CNNs) for feature extraction, recurrent neural networks (RNNs) for sequence learning, and generative adversarial networks (GANs) for generating synthetic malware samples to enhance training datasets. By integrating these techniques, hybrid models can improve detection accuracy, adapt to new malware variants, and reduce false positives.

Keywords: Malware, Artificial intelligence (AI), Cyber Crime, CNN, GAN, RNN, Trends, Development, Resources, Tools.

PPO5

**UNRAVELING THE CRANIOFACIAL INDEX: A STUDY ON WESTERN
UTTAR PRADESH POPULATION OF INDIA**Ayushi Arora¹, Muskaan Makhija¹¹Intern, Sherlock Institute of Forensic Science, India**Abstract**

As a fundamental aspect of anthropology, anthropometrics examines the complex dimensions of human existence including the physical, emotional, social and cultural domains. Within this vast field, forensic anthropology is a key discipline, particularly in the context of crime scene investigations and mass disaster scenarios. Cephalometry, a subset of anthropometry specializes in the measurement of craniofacial dimensions and provides invaluable insight into population characteristics and variation. This poster delves into a comprehensive investigation of anthropometric parameters in the population of Western Uttar Pradesh, shed light on craniofacial morphologies and their correlation with demographic factors. Through careful data collection and analysis, the study reveals interesting patterns in criminal and facial indices and elucidates prevailing trends in head and face shapes among individuals from the region. Key findings reveal a prevalent presence of brachycephaly among both males and females, underscoring regional influences on head shape characteristics in northern India. In addition, mesocephaly emerges as a notable feature, highlighting the diverse morphological spectrum inherent in the population of western Uttar Pradesh. Analysis of facial morphology reveals a predominance of hyperleptoprosopic faces in women, challenging conventional trends and prompting further investigation into the underlying genetic and environmental determinants shaping facial proportions in this demographic. The significant positive correlations between head dimensions and facial parameters underscore the inherent interrelationships governing craniofacial development and enrich our understanding of patterns of coordinated growth in the study population. This research not only contributes to anthropological understanding of craniofacial diversity, but also has implications for forensic investigations, medical diagnosis, and population studies. By elucidating the anthropometric nuances specific to the population of western Uttar Pradesh, this work offers valuable insights into complex interplay of genetics.

Keywords: Anthropological Landmarks, Cephalometry, Cephalic Index, Facial Index, Western Uttar Pradesh.

PPO6

INVESTIGATION & EXAMINATION OF FIRE-RELATED CASES: PATTERNS, CAUSES, AND IMPLICATIONS

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Abstract

Fire-related cases present serious challenges in forensic investigations because figuring out where the fire started, what caused it, and its effects can be very complicated. This study looks at different fire cases to explore how investigations are carried out, the difficulties faced, and the results of forensic examinations. Data for this study were gathered from the real fire related cases, where the investigation of scene and detailed examination was done. Based on the observations, the conclusion were given whether the cause of fire is intentional like arson or unintentional such as due to electrical problems, mechanical issues etc. The poster highlights to identifying the arson versus accidental fires through detailed case studies and comparative analysis. Based on these various points examiner aimed to identify the cause and origin of fire that whether it was plotted intentionally or unintentionally. It also discusses the legal and ethical considerations inherent in fire investigation, emphasizing the importance of attentive scientific methods and observation to procedural standards. In conclusion, this study contributes to advancing the field of forensic fire investigation by providing insights into effective methodologies and challenges encountered in determining the origin and cause of fires.

Keywords: Fire, Investigation, Forensic, Challenges, Analysis, Incident Patterns, Ethical Consideration, Scientific Methods, Mechanical Issues, Fire Forensic Investigation, Accidental Fires.

PPO7

POROSCOPY IN FORENSIC SCIENCE: A DETAILED OVERVIEW

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Abstract

Poroscopy is the study and examination of the sweat pores present on the ridges of palmar and plantar surfaces. This review paper aims to examine the previously existing literature on the poroscopy so that its significance in forensic science can be established. The relationship between age and sex of a person with sweat pores has been studied. Hence, the importance of poroscopy in personal identification as third level of classification has been established. A review of all potentially relevant articles was carried out wherein, the non-relevant papers were excluded by screening their titles and abstracts following which, full-text review of all articles that met the inclusion criteria was carried out. The parameters based on which poroscopy helps in personal identification includes size, shape, number, position, inter-spacing. The study concluded that sweat pores can prove to be major tool for sex determination, age determination and personal identification.

Keywords: Fingerprints, Friction Ridges, Personal Identification, Poroscopy, Sweat Pores.

PPO8

FORENSIC ANALYSIS OF WORK-RELATED PATTERNS IN FINGERPRINTS AND PALMPRINTS ACROSS VARIOUS PROFESSIONS: A COMPARATIVE STUDY

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Abstract

Fingerprints and palmprints are crucial forensic tools for personal identification due to their unique and permanent nature. This paper examines the forensic analysis of occupational marks in both fingerprints and palmprints across a wide range of professions, including laborers, potters, masons, chefs, musicians, healthcare workers, coconut tree climbers, mechanics, and fishermen. These professions often involve specific work-related activities that can lead to distinctive features, such as calluses, cuts, abrasions, burns, and other unique patterns. Different occupational tasks expose individuals to various physical conditions and repetitive motions, altering the dermal ridges of the fingers and palms. For instance, chefs may develop burns and cuts, musicians may have calluses from playing instruments, healthcare workers might experience changes due to frequent glove use and disinfectant exposure, and coconut tree climbers may develop calluses and abrasions from climbing. Mechanics often exhibit cuts and blisters from handling tools and machinery, while fishermen can develop rough patches and calluses due to constant contact with fishing gear and environmental factors like saltwater. This review compiles existing literature and studies on the correlation between occupational tasks and fingerprint and palmprint alterations, identifying common patterns and anomalies linked to specific professions. By analyzing these occupational marks, the study aims to improve the understanding of how various jobs impact fingerprint and palmprint characteristics. This knowledge enhances forensic analysis for both criminal and civil cases by emphasizing the importance of accounting for occupational influences, ensuring a more comprehensive and accurate evaluation.

Keywords: Fingerprints, Palmprints, Personal Identification, Occupational Marks, Forensic Analysis, Dermal Ridge Alterations, Forensic Evidence.

PPO9

MIKC-TYPE MADS DOMAIN PROTEINS: MORPHOLOGICAL AND GENETIC ANALYSIS OF INFLORESCENCE AND FLOWER DEVELOPMENT IN VARIETIES OF *C. SATIVA*

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Abstract

MIKC-type MADS-domain proteins play an important regulatory role in reproductive and vegetative development in plants and are vital molecular components of evolutionary mechanisms. They have evolved over several years and are involved in flower, fruit, leaf, and root development. Sequencing efforts with *Arabidopsis* have paved the way for continued research and analysis in other plant species. Recently, *Cannabis* has been revolutionized globally and has become part of our daily lives. Due to legal restrictions, it has been difficult to study this plant as a specimen for scientific research. However, with the easing of restrictions worldwide and increased accessibility and interest, it has sparked curiosity among plant biologists. The flowers of female cannabis bear glandular trichomes that contain THC and CBD; these compounds determine whether a variety is hemp (male) or marijuana (female). Although MADS-box genes may be present in both varieties, it is essential to uncover the molecular basis of these compounds and other properties (including psychoactive properties) they may confer to the plant. Medical marijuana is now being extensively used to treat diseases such as cancer and epilepsy. We believe that by gaining insights into the underlying genetics of the plants using bioinformatics tools to study MADS-box proteins—especially those involved in cannabis inflorescence across different strains—we can better understand the biochemistry of the plant and leverage it for our benefit. Such computational methods are necessary to broaden knowledge in molecular biology and provide deeper insights into a plant's genomic identity. This analysis can pave the way for the search for MADS-box sequences in other plants, as well as the phylogenetic placement of genes in other species of *Cannabis sativa*.

Keywords: MIKC-type, MADS-domain, THC, CBD.

PPO10

DIFFERENTIATION OF ROYAL BENGAL TIGER AND INDIAN LEOPARD BONES USING ATR-FTIR SPECTROSCOPY: A FORENSIC TOOL FOR WILDLIFE CONSERVATION

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Abstract

Animal bones are frequently used to produce artifacts, trophies, jewellery, and traditional Chinese medicines (TCM). According to a TRAFFIC report (2019), 19% of tiger seizures between 2000 and 2018 involved bones, making them the second most demanded product after skin. Thus, in order to proceed with additional wildlife seizure procedures, the species of the seized wildlife bone or bone products must be determined. In this proof of concept study, an attempt has been made to differentiate 14 reference bone samples of Royal Bengal Tiger (*Panthera tigris tigris*) and Indian Leopard (*Panthera pardus fusca*) using a non-destructive, rapid, reliable, and eco-friendly ATR-FTIR spectroscopic technique combined with chemometrics. A dataset of 42 spectra (3 spectra per sample) was divided into a training dataset with 28 spectra (2 spectra per sample) and a validation dataset with 14 spectra (1 spectrum per sample). PCA and PLS-DA models were constructed using the training dataset. It was observed that PLS-DA model successfully differentiated bone samples of two species into distinct classes with R-square values of 0.99 (calibration) and 0.98 (cross-validation). External validation was carried out using a validation dataset to validate the constructed PLS-DA model and all the spectra were successfully assigned to their respective classes. A set of cattle bone spectra was projected onto the created PLS-DA model for additional validation. It was found that bone spectra of three species were successfully separated into three distinct classes. A blind test was also conducted using 5 unknown bone samples which were correctly assigned to their respective classes. The present study emphasizes the advantages of using rapid and non-destructive ATR-FTIR spectroscopy combined with PLS-DA tool for the differentiation and identification of Royal Bengal Tiger and Indian Leopard bones.

Keywords: Wildlife Forensic, Royal Bengal Tiger, Indian Leopard, Bones, ATR-FTIR Spectroscopy.

POSTER PRESENTATION (STUDENT CATEGORY)

- ❖ **SPO-1 | Aparna Sudheen**
Forensic Anthropology
- ❖ **SPO-2 | Deep Sandipkumar Patel**
Development Of Latent Print, Using Medicinal Drugs Powder Using Dolo And Paracetamol Tablet.
- ❖ **SPO-3 | Prachurya Saha**
Hirisplex S System: A Forensic DNA Phenotyping Tool To Identify The Pigmentation Trait
- ❖ **SPO-4 | Buvanesan K**
Investigation Of Age-Old Coins By Instrumental Neutron Activation Analysis For Forensic Applications
- ❖ **SPO-5 | G Krishna**
Forensic Analysis Of AI-Modulated Threatening Voices: A PRAAT-Based Study
- ❖ **SPO-6 | Shreya Tewary**
Quantum Dots In Crime Scene Investigation: State Of The Art And Emerging
- ❖ **SPO-7 | Aashritha Marouthu**
Drug Design
- ❖ **SPO-8 | Shayani Das**
From Chaos To Clarity: Innovations In Identifying Victims And Investigating Mass Disasters
- ❖ **SPO-9 | Mayukh Bhadra**
The West Bengal National University of Juridical Sciences
- ❖ **SPO-10 | Mahima Choudhary**
Corelation between Fingerprint and ABO Blood Group
- ❖ **SPO-11 | Malavika Venu**
Forensic Entomology
- ❖ **SPO-12 | Monalisa Mohanty**
Forensic polynology sample collection and sample preparation for forensic investigation

- ❖ **SPO-13 | Piyusha Roy**
The Impact of pH and Temperature on Decipherment Frixion Ink Erasability Using Non Destructive Method
- ❖ **SPO-14 | Sayoli Dharamshahare**
Decipherment of Indentation on the Stone Paper: Forensic Document Examination
- ❖ **SPO-15 | Mohd Aman**
Forensic Anthropology
- ❖ **SPO-16 | Rajput Sakshi Kumari Sunil Singh**
Using Forensic Biology to Extract DNA from Lipstick
- ❖ **SPO-17 | Kumari Puja**
The Synergistic Role of Forensic Linguistics and Handwriting Examination in Analyzing Threat and Ransom Letters

SPO1

ESTIMATING STATURE FROM DIFFERENT ANTHROPOMETRIC MEASUREMENTSAparna Sudheen¹, Prof. Stella Tan¹, Dr. Lim Xin Xiang¹¹National University of Singapore, Singapore**Abstract**

Anthropometric data collection is a crucial aspect of forensic applications, particularly in the estimation of human stature. This research paper ventures into a unique area of study, exploring the correlation between various body measurements (fingerprint length, digit length, hand length, forearm length, foot length, and head length) and height within the diverse Singaporean population. A comprehensive dataset was collected from a diverse sample of 70 Singaporean individuals, with meticulous measurements taken from the right side of the body and height recorded. Linear regression equations were then developed for males, females, and pooled samples, leveraging the collected anthropometric data to predict stature. Statistical methods like correlation analysis and multivariate modelling were employed to investigate these associations. The findings reveal distinct factors that strongly influence estimation in different gender groups. For males and females, digit and hand length emerged as key predictors, with correlation coefficients ranging from 0.557 to 0.695, indicating solid linear associations. While slightly weaker, forearm length for males and foot length for females also exhibit positive correlations, emphasising their practical importance. These predictors maintained their significance in the pooled sample, encompassing both genders. These findings thoroughly explain the relationship between body measurements and height. The study's findings hold significant implications in identifying human remains and estimating stature from partial skeletal remains. Moreover, they emphasise the adaptability of the developed regression models to diverse gender and anatomical characteristics within the Singaporean context.

Keywords: Anthropometric Measurements, Stature Estimation, Regression Models, Singaporean Population, Forensic Anthropology.

SPO2

DEVELOPMENT OF LATENT PRINT USING MEDICINAL DRUGS POWDER USING DOLO AND PARACETAMOL TABLET

Deep Patel¹

Abstracts

Fingerprints are vital and unique identity for every individual. These are the impressions that were left behind by humans. The science of fingerprinting is called dermatoglyphics. The biggest advantage of fingerprints is that it does not change over time and last till death of descent. The most common print encounter is latent print on each object at crime scenes. Such prints are obtained when natural oil and sweat existing between the fingerprint ridge are transferred to any object's body by having physical contact. This kind of print is obtained by physical and chemical methods. The present research, on identifying latent prints or invisible fingerprint utilizing various drugs powders on different surfaces. Here for this research, we used both DOLO and PARACETAMOL tablets and turned them into powder and used them for obtaining for development of latent print.

Keywords: Fingerprints, Dermatoglyphics, Latent Print, Medicine, Dolo, Paracetamol.

SPO3

HIRISPLEX S SYSTEM: A FORENSIC DNA PHENOTYPING TOOL TO IDENTIFY THE PIGMENTATION TRAIT

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Abstract

The present study is on applicability of forensic DNA phenotyping tool, HIrisPlex, which will bring out new intelligence domain in forensic investigation and the criminal justice system. DNA phenotyping is one of the most emergent areas of forensic genetics. FDP provides the ability to predict the appearance traits from minute amounts of unknown DNA sample which provide police or agencies with intelligence to identify. FDP comes in role when perpetrators are unidentifiable via conventional forensic DNA profiling. Predictions of externally visible characteristics are possible through analysis of SNP. Fundamental human genetics research has led to a better understanding of the specific DNA variants responsible for physical appearance characteristics, particularly eye, hair, and skin colour. To understand human genome variation and epigenome wide association studies was crucial for evolution of FDP tools. Prediction of pigmentation traits is a particularly advanced branch of FDP and can be very useful in identification. The HIrisPlex S system predicts the pigmentation trait with tested and desired accuracy. The HIrisPlex-S method relies on the analysis of 41 DNA variants and interpretation of the probabilities of eye, hair, and skin colour categories. All these methods were based on SNaPshot methodology. HIrisPlex will narrow down the targeted search of suspect and unidentified skeletal remain. The HIrisPlex system can also applied in DNA samples extracted from old and ancient bones, demonstrating its suitability in degraded DNA analysis. This is proved to be an effective DNA analysis domain tool.

Keywords: Forensic DNA Phenotyping, SNP, Eye Colour, Hair Colour, Skin Colour.

SPO4

INVESTIGATION OF AGE-OLD COINS BY INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS FOR FORENSIC APPLICATIONS

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³School of Advanced Sciences and Languages, Vellore Institute of Technology University, Bhopal, Madhya Pradesh, India

⁴Indira Gandhi Centre for Atomic Research, Kalpakkam, Tamilnadu, India

Abstract

In today's interconnected society, a surge in artefacts theft and counterfeit cases has given rise to significant worries. Theft of priceless objects like artwork, antiquities, and cultural heritage undermines the integrity of the global art market in addition to losing countries of their cultural heritage. Copper coins and copper artefacts as key sources of evidence in forensic cases when confronted with replica and fake museum artefacts, which are becoming increasingly prevalent in contemporary culture. Hence, the current study aims to develop a reliable method to authenticate copper artifacts by examining their trace components based on their elemental composition by non-destructive methods. For elemental analysis, Energy Dispersive X-Ray Fluorescence (ED-XRF) and Instrumental Neutron Analysis (INAA) have been employed. A set of 11 age old coins have been collected from different geographical origin 5 were Indian origin and other six coins are collectively from United States of America, Africa, Canada, Malaysia, and France have been chosen for the study. The elements present in the samples deduced based on Energy Dispersive X-Ray Fluorescence and activation analysis are Cu, Mn, Fe, Zn, and As. The major activation products observed in the samples are ⁶⁴Cu, ⁶⁶Cu, ⁷⁶As, ⁵⁶Mn, ⁵⁹Fe, ⁶⁵Zn, and ^{69m}Zn.

Keywords: Age-Old Coins, INAA, HPGe Gamma Spectrometry, Forensic Investigation, Composition Analysis.

SPO5

FORENSIC ANALYSIS OF AI-MODULATED THREATENING VOICES: A PRAAT-BASED STUDY

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Abstract

Audio analysis is defined as the systematic investigation of recorded audio evidence to determine its origin, content, and authenticity. It plays a vital role in forensic investigations, especially in analysing audio recordings to determine the identity of speakers through comparison of known and unknown samples. Audio comparison involves examining a variety of auditory parameters such as pitch, intensity, jitter, pulse, duration, and spectral characteristics. This investigation seeks to determine the likelihood of a link between recognized and questioned voices. This study examines audio forensics related to AI-altered threatening voices, highlighting concerns about the potential harm posed by AI-driven voice-altering software in creating threatening messages. It explores the use of PRAAT analysis to determine its effectiveness in identifying AI-manipulated voices used with malicious intent. Using a careful methodology, audio samples will be collected from participants acting out threatening scenarios based on prepared prompts. Then, these samples will be altered using software called VOICEMOD CLIPS. The PRAAT software will be used to analyse the original human voice and robotic voices which is modulated using AI, focusing on factors such as pitch, formant frequencies, jitter, pulse and spectrographic representations. By looking at these aspects along with ways to identify speakers and conducting a thorough analysis, the study aims to give useful insights for law enforcement and security agencies dealing with technology-based threat detection.

Keywords: AI-Modulated Voices, Voice Forensics, PRAAT Analysis, Threat Detection, Voice Analysis, Speaker Identification, Voice Manipulation.

SPO6

QUANTUM DOTS IN CRIME SCENE INVESTIGATION: STATE OF THE ART AND EMERGING APPLICATIONS

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Abstract

Nanotechnology is a flourishing branch of research due to the incredible properties nanomaterials exhibit over their massive counterparts. Quantum dots (QDs) are small semiconductors that emit energies as colours and have diverse applications in various fields. In forensic science, QDs are being utilized for enhancing the visualization of latent fingerprints. These fingerprints, left on surfaces by deposits of oils or perspiration, are crucial evidence in crime investigations. It has been widely applied in biosensing due to its outstanding optical properties. The emissions of quantum dots are mainly determined by their composition and size. By spraying quantum dots on these latent fingerprints, researchers have achieved an innovative method to make the prints glow, aiding in the visualization of intricate details like ridges and other features. This technology has shown promising results in enhancing the visibility of latent fingerprints on different surfaces, including glass, aluminium cans, and polymer banknotes, even up to eight days after the marks were made. The use of quantum dots with specific filters has enabled easy visualization of fingerprint features, although challenges exist in developing natural fingerprint patterns immediately after deposition. Researchers have also addressed environmental concerns by enhancing the biodegradability of quantum dots without compromising their glowing response. Carbon dots (C-dots) are another type of quantum dot being explored for forensic applications. C-dot-based compositions adopt different colours when illuminated by various light sources, enabling background-free images and maximizing the reliability of fingerprint analysis. Strategies like using a diluent matrix, core-shell nanostructures, and heteroatom doping have been employed to overcome the self-quenching tendency of C-dots in the solid state. Graphene quantum dots (GQDs) are also being innovatively used as fluorescent sensors to detect and quantify illicit drugs like amphetamine and cocaine. GQDs are green, safe, biocompatible, and less toxic than metallic quantum dots. N-doped GQDs show higher response to binding substances, with detection concentrations ranging from 5-5000 μM for amphetamine and 10-10,000 μM for cocaine. The fluorescence peak intensity ratio within these ranges has a two-stage linear negative correlation with drug concentration. This application of quantum dots in forensic science represents a significant advancement in evidence analysis and crime scene investigations. The ability to visualize fingerprints and detect drugs using these nanomaterials has broad forensic prospects. However, further research is needed to optimize the techniques and expand their applicability to a wider range of surfaces and substances.

Keywords: Quantum Dots, Carbon Dots, Graphene Quantum Dots, Fluorescent Sensors, Drug Detection, Anti-Counterfeiting, Nanotechnology.

SPO7

DRUG DESIGN AND DEVELOPMENT USING GENOMIC DATA - BIOINFORMATICS APPROACH IN GENOMICS

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Abstract

Advances in genomics and bioinformatics are crucial for drug development, enhancing target identification and advancing drug leads for preclinical and clinical studies. Population genomics aids in target identification, while gene expression analysis and genome-wide CRISPR editing prioritize drug targets. Bioinformatics accelerates therapeutic target identification, candidate screening, and refinement, using high-throughput data from transcriptomics, proteomics, and genomics sources. Techniques like molecular docking and mass spectrometry improve protein-compound interactions. Advances in Genomics for Drug Development- Population genomics aids in target identification. Bulk and single-cell gene expression analysis aids in understanding biological relevance of drug targets. Genome-wide CRISPR editing prioritizes drug targets. Role of Bioinformatics in Drug Design and Discovery- Accelerates identification of therapeutic targets. High-throughput data from transcriptomics, proteomics, and genomics contributes to mechanism-based drug development. Techniques like molecular docking and mass spectrometry enhance accurate protein-compound interactions.

Keywords: Drug Design, Genomics, Bioinformatics, CRISPR.

SPO8**FROM CHAOS TO CLARITY: INNOVATIONS IN IDENTIFYING VICTIMS AND INVESTIGATING MASS DISASTERS**Shayani Das¹, Avni langer²^{1,2}3rd Semester, M.Sc. Forensic Science, School of Forensic Science,
The West Bengal National University of Juridical Sciences**Abstract**

Disasters are initiated by destructive forces that critically arise from various events like hurricanes, earthquakes, terrorist attacks, plane crashes, industrial or military incidents. Because of the massive scale of casualties and the intricate nature of the situation, mass disasters—whether natural or man-made—present immense challenges to forensic investigators. Examining dismembered body parts or charred bodies found in such cases plays an essential role in these investigations and requires a detailed map of the locations of different organs to help with identification. Advances in forensic science have shifted the process by which these incidents are examined making identification much more precise and effective. Emergence of recent tools aids in analysis and identification of the dead bodies thus providing information regarding the root of the incident. Also the role of various multidisciplinary fields in forensic investigation [anthropology, odontology, genetics] aids in positive identification of the dead or unidentified bodies. The article provides a comprehensive overview of mass fatalities situations and the investigating procedure, delving into the depths of humanitarian forensics, its analysis and investigation. This will shed light on the difficulties associated with identifying victims, which will help with future catastrophe responses and preparation plans.

Keywords: Innovations, Mass Disasters, Dead Bodies.

SPO9

FROM TRIGGER TO TRACE: TRACING ORGANIC AND INORGANIC GUNSHOT RESIDUE IN FORENSIC BALLISTICS

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Abstract

One of the central tenets of forensic ballistics is gunshot residue (GSR) analysis, which is the critical connection between gunshot discharge events and the identification of suspects in criminal investigations. This study explores a thorough methodology for identifying and analysing organic and inorganic GSR, highlighting developments in analytical methods and their use in forensic research. The chemical makeup of GSR, the complexities of residue deposition processes, and the numerous variables affecting residue persistence and transfer dynamics are all carefully examined in this work. This paper extensively analyses state-of-the-art technologies, including Scanning Electron Microscopy-Energy Dispersive X-ray Spectroscopy (SEM-EDX) and novel spectrometric techniques. It explains their sensitivity, specificity, and dependability in differentiating between fundamental GSR particles and external contaminants. In addition, the study tackles obstacles presented by environmental variables and cross-contamination problems, promoting uniform procedures in sample gathering and examination to enhance the accuracy of forensic analyses. This work aims to improve the evidentiary integrity of GSR in forensic ballistics by bridging the gap between organic and inorganic GSR tests. It also suggests future research directions and valuable applications in criminal justice systems.

Keywords: Forensic Ballistics, Gunshot Residue, Trace, X-Ray Spectroscopy.

SPO10

CORRELATION BETWEEN FINGERPRINT AND ABO BLOOD GROUPING

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Abstract

Fingerprint is considered as the best tool of identification. This study was carried out in July 2023 on 50 students of different ABO blood groups of GD Goenka University, Haryana resident only with two objectives a.) To study distribution of fingerprint pattern among students having different ABO and Rh blood group and b.) Correlate any relation between their characters and blood groups. Male and Female ratio was 2:1. Majority of the subject in the study were of blood group A followed by B and O with whom 95% were Rh positive. The general distribution of pattern of fingerprint showed high frequency of loops whereas whorls were moderate and arches were least in frequency. While AB blood group having Rh positive or negative whorl pattern found in majority.

Keywords: Fingerprint, ABO Blood Group, Correlation, Distribution, Pattern, Frequency.

SPO11

FORENSIC ENTOMOLOGY

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Abstract

It is a branch of science that involves the study of insects in criminal investigations. It mainly focuses on insects such as flies and beetles to help determine the time since death, the location of a crime etc. When a body is found, entomologists investigate the insects that are close to it. Through studying these insects, life cycles and behaviour, they can determine when the person has died, whether the body has moved and even identify possible suspects. A vital part of criminal investigations is forensic entomology, especially when it comes to the use of insects in homicide investigations. Insects are essential for defining the place of death, measuring the post-mortem period (PMI), and occasionally even pinpointing the exact cause of death. Forensic entomologists may uncover important evidence about the time since death by examining the sequence of insect species colonising a body and their developmental phases. Law enforcement uses this evidence to help solve cases by reducing the scope of the criminal activity, establishing alibis, and narrowing the timing of the crime. Insects evidence can also shed light on a number of important aspects of the inquiry, such as how it moves of a corpse after death and the presence of toxins or medicines. All things taken into account, forensic entomology highlights the complex interaction that exists between entomology and crime scenes, providing forensic investigators with important support as they work to solve the riddles surrounding murder cases.

Keywords: Insects, Post-Mortem Period (PMI), Developmental Phases, Criminal Investigations, Law Enforcement, Time Since Death, Entomotoxicology.

SPO12

FORENSIC POLYNOLOGY: SAMPLE COLLECTION AND SAMPLE PREPARATION FOR FORENSIC INVESTIGATION

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Abstract

For more than fifty years, forensic pathology has been utilized by law enforcement. The use of pollen and spores in the resolution of civil and criminal cases is known as forensic palynology. You can collect pollen and spores from a very diverse range of objects, including dead people. Spores and pollen offer hints about the origins of the objects and the features of the habitats that supply the material for them. Their resistance to mechanical and chemical destruction, morphology, dispersal mechanisms, abundance, and microscopic size all contribute to their usefulness. Without leaving any visible evidence for a suspect to follow, pollen is easily picked up by a suspect or an object and carried away from crime scenes. As of right now, forensic palynology has been the subject of relatively little scientific study. Any surface, matrix, or potentially relevant object can be used as a sample source. The future of this area of forensic science is secure given the volume of publications and well-publicized cases involving forensic palynology and environmental analysis that are currently in the news. Furthermore, law enforcement agencies now have access to far more detailed information, enabling them to more accurately determine what may have occurred during the commission of criminal activities, thanks to the development of multidisciplinary approaches to environmental analyses of crime scenes. Finding the most effective way for pollen sampling and adjusting and contrasting the most popular police collection methods—such as police tapes, cotton swabs, brushes, vacuum cleaners, or electrostatic techniques—are two of our research areas. Standard palynological preparation methods used in forensic descriptions are based on the combination of several chemicals, including potassium hydroxide (KOH), hydrofluoric acid, hydrochloric acid (HCL) and hydrofluoric acid (HF), bleaching agents, heavy liquid separation (zinc bromide), and acetolysis. The degradation of pollen grains brought on by the chemicals and procedures used during sample preparation is one of the key issues.

Keywords: Palynology, Forensic Pathology, Pollen, Spores.

SPO13

THE IMPACT OF PH AND TEMPERATURE ON DECIPHERMENT FRIXION INK ERASABILITY USING NON DESTRUCTIVE METHOD

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Abstract

Frixion ink is a temperature dependent writing material, exhibits unique erasability properties. This pen has a characteristic with the slight increase in the temperature can erase the ink, and in day to day usage the heat is provided with the friction. In this study the effect of pH and temperature on the erasing efficiency of frixion ink was studied and the decipherment of the erased content using VSC 8000 HS was done. In this study total 50 samples were studied. Samples were categorized on the basis of color of ink (blue & black). After writing from the frixion pen, it was erased with eraser provided with the pen, and later document was exposed with the solutions of three different pH (acidic (pH <7), neutral (pH =7), and basic (pH >7)) and heated at a fixed temperature. Using thermometer, we measure the temperature range which helps to identify the temperature range of erasing efficiency of the ink for different mediums. In acidic medium the range of temperature is 30° C to 50°C, for neutral medium the range is 51° C to 69°C and for basic medium the range is 70°C to 90°C. Samples were analyzed using different analytical techniques of VSC 8000 HS. The results indicated that chemically erased frixion ink can be deciphered using VSC 8000HS even when document is treated with different temperature and chemical.

Keywords: Document, Erasure; Frixion Ink; pH, VSC 8000 HS.

SPO14

DECIPHERMENT OF INDENTATION ON THE STONE PAPER: FORENSIC DOCUMENT EXAMINATION

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Abstract

Indentation examination is one of the key role for the forensic document examination. The stone paper, also known as rich mineral paper, is a paper-like material manufactured from calcium carbonate with a small amount of high-density polyethylene (HDPE), instead of traditional cellulose-based fibres. These papers are reusable papers, with special pen and eraser. In this study the paper was rewritten multiple times with time gap in the usage of the eraser to analyse if the analysis of the indentation was affected. Also, it was studies that the after which level the decipherment of the indentation was possible. For the examination of the indentation 3D analysis of paper was used in VSC 8000HS. Also, the analysis was done under different light sources to study the characteristics of the ink of the pen. The results indicated that the decipherment of the indentation in the stone paper is dependent on after how much time it was erased and after what time the paper was used for rewriting.

Keywords: Document, Decipherment, Indentation, Stone Paper, VSC 8000HS.

SPO15

FORENSIC ANTHROPOLOGY

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Abstract

Forensic anthropology is a branch of forensic science which deals with the identification of skeletal remains which had been decomposed or otherwise unidentifying human remains, the work of the forensic anthropologist is to work in conjunction with the forensic pathologist, forensic odontologist and homicidal investigators to identify a decedent and to discover the evidence of foul play and to investigate the time interval of postmortem. Forensic anthropology is also useful in interlinking the anthropological and archeological methods to the recent medicolegalsystem. The devices or the instrument used for performing forensic anthropology includes personal protective instrument{ PPE}. There are two types of identification in forensic anthropology: 1. Circumstantial identification 2. Positive identification. Identification methods address issues such as: (1) whether material is skeletal in nature (2) differentiating human from nonhuman remains(3) determining whether human remains are medicolegally significant; (4) estimating a biological profile (i.e., sex, ancestry, age, stature) (5) personal identification using radiography; and (6) the use of stable isotopes for predicting the region-of-origin of unidentified remains. Collaboration between forensic anthropologists and DNA experts is essential for resolving medicolegal cases. Forensic anthropology involves diverse applications of anthropological knowledge to medico-legal problems. While the applications are evidence-driven, the available scientific methodology and foundation have developed through decades of research and experience. The roots of this field are anchored in comparative human anatomy but methodology has developed through experimentation, the assemblage of documented collections and databases and thoughtful research design. While forensic anthropology represents a mature scientific field, it continues to evolve and advance through new, innovative global research.

Keywords: Forensic Anthropology, Forensic Odontology, Identification.

SPO16

USING FORENSIC BIOLOGY TO EXTRACT DNA FROM LIPSTICK

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Abstract

Context: Since lipstick smudges are commonly discovered at crime scenes, they are an important yet difficult piece of evidence for forensic examination. One of the most important tools in identifying suspects may be the capacity to extract and examine DNA from such materials. But the unique makeup of lipsticks—which contains oils, waxes, and pigments—presents major challenges to effectively extracting DNA and performing analysis afterwards. **Method:** The goal of this work was to enhance a DNA extraction procedure designed especially for lipstick samples. The ability of a number of commercial DNA extraction kits to recover DNA from lipstick stains that were both fresh and old on various surfaces was examined. Important procedures included breaking down the lipid content of the samples beforehand, then extracting DNA, quantifying it, and amplifying it using PCR. Following DNA extraction, STR profiling was used to evaluate the amount and quality of genetic material that could be recovered. **Results:** Compared to traditional techniques, the study demonstrated that the modified extraction process greatly increased DNA yield and quality. Fresh lipstick samples provided the best rates of DNA recovery, with over 85% of samples receiving valid STR profiles. Reduced but still dependable DNA recovery was seen in aged samples. It was discovered that variations in the substrate material (such as glass or fabric) affected the extraction's effectiveness. **Conclusion:** our study shows that DNA may be effectively collected from lipstick marks with the right alterations, yielding important forensic evidence. The results highlight the potential of this technique in forensic investigations by indicating that even aged or destroyed lipstick samples may provide accurate DNA profiles. It is advised that more research be done to improve the procedure for various lipstick kinds and ambient circumstances.

Keywords: Forensic Biology, DNA, PCR, STR.

SPO17

THE SYNERGISTIC ROLE OF FORENSIC LINGUISTICS AND HANDWRITING EXAMINATION IN ANALYZING THREAT AND RANSOM LETTERS

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Abstract

Forensic linguistics and handwriting examination play a crucial role in the analysis of the threat and ransom letters, providing essential evidence in criminal investigations. Forensic linguistics depicts the linguistic features of a written text, such as syntax, vocabulary, and stylistics patterns, to identify the author or assess the authenticity of the document. When paired with handwriting testing, which examines the physical properties of handwriting to authenticate identification or detect counterfeit, these approaches offer a holistic strategy to analyse such high-stakes communications. This study investigates the interaction of forensic linguistics and handwriting analysis in the context of the threat and ransom letters, focussing on essential approaches, case studies, and new technological breakthroughs. Understanding how language analysis compliments handwriting testing allows forensic professionals to improve the accuracy of authorship identification, resulting in more effective resolution of instances involving coercive communication. This review article emphasises the importance of multidisciplinary collaboration and ongoing research to handle the difficulties of current criminal investigation purposes.

Keywords: Forensic Linguistics, Handwriting Examination, Criminal Investigation, Linguistics Features.

ONLINE PAPER PRESENTATION (PROFESSIONAL CATEGORY)

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Statistical Estimation Of The Age Of The Fingerprint Donor Using Atomic Force Microscopy: A Prospective Study Using Non-Destructive Method
- ❖ **PPA-02 | Dr. Prashant Ashok Punde**
Comparative Analysis Of Sex Determination Using Forensic Odontometry & Palatine Rugae Configuration In Western Maharashtra: In Vitro Study
- ❖ **PPA-03 | Dr. Sukhpal Kaur**
Need to Explore – Bite Mark Analysis
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Assessing The Assessment: Indonesian Forensic Pathology Residency Training National Exam
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Advancements in Forensic Odontology through Nanotechnology
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Digital Deception: The Rise of Honey Traps in the Online Era

PPA01**STATISTICAL ESTIMATION OF THE AGE OF THE FINGERPRINT DONOR USING ATOMIC FORCE MICROSCOPY: A PROSPECTIVE STUDY USING NON-DESTRUCTIVE METHOD**

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Abstract

Dactylography is a highly advanced scientific discipline that focuses on the analysis of fingerprint patterns for the purpose of individual identification. Fingerprints are one of the few forms of concrete evidence that investigators can get from the crime scene, which demonstrates a direct connection between the perpetrators and the crime scene. Amidst the current period of scientific progress in fingerprint sciences, experts remain cautious about some unresolved matters that need scientific scrutiny, such as accurately determining the age of the individual based on fingerprint samples obtained from crime scenes. This study focuses on the specific issue with an optimistic viewpoint. A total of 200 fingerprint samples, belonging to five different categories based on age and sex, were collected. These categories include: (a) individuals aged 10-20, both male and female, (b) individuals aged 20-30, both male and female, (c) individuals aged 30-40, both male and female, (d) individuals aged 40-50, both male and female, and (e) individuals aged 50-60, both male and female. The samples were placed on clean glass slides and examined using the Atomic Force Microscope (AFM), a precise tool for studying the detailed characteristics of the samples at the nanoscale. The quantitative data and graphical depiction of the unprocessed latent fingerprints obtained from the AFM equipment effectively demonstrated the distinctions among the five age groups. This study demonstrates the possibility of using instrumentation approaches to determine the age of the fingerprint donor in a way that is non-destructive and non-invasive.

Keywords: Fingerprints; Latent Fingerprints; Atomic Force Microscope; Age Estimation; Statistical Analysis.

PPA02

COMPARATIVE ANALYSIS OF SEX DETERMINATION USING FORENSIC ODONTOMETRY & PALATINE RUGAE CONFIGURATION IN WESTERN MAHARASHTRA: IN VITRO STUDY

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Abstract

To Compare two methods of sex determination using forensic odontometry & palatine rugae configuration on dental casts Western Maharashtra: In vitro study. Methodology- The present study was done on randomly selected 100 dental study models of random patients. Name & sex of the patient were blinded from researchers. Metric measurements were done on the casts using Vernier calipers by two different investigator. Another two investigators evaluated the casts for palatine rugae configuration. All measurements were put in formula developed for Indian population. Data obtained was subjected to standard statistical analysis. Inferences from both the groups were compared using chi square test. Results: The odontometric formula for sex determination Indian population have shown statistically significant results as compared to palatine rugae method of sex determination. Conclusion: Forensic odontometric methods for sex identification is more reliable indicator than the palatine rugae method. Need to conduct similar studies in different populations to confirm the findings of the study.

Keywords: Sex Determination, Forensic Odontometry, Palatine Rugae.

PPA03

NEED TO EXPLORE – BITE MARK ANALYSIS

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Abstract

Forensic dentistry is a challenging and emerging branch of dentistry that involves application of dentistry in human identification, age estimation, sex determination and correct collection, management, interpretation, evaluation, and presentation of dental evidence for criminal or civil legal proceedings. Various aspects of forensic odontology include dental identification, cheiloscopy, rugae print identification, tongue prints, denture identification, facial reconstruction, DNA profiling and bite mark analysis. The examination and analysis of bite marks is an attempt to link the dentition of a potential biter with a bite mark. The bite mark may be present on different sites of victim's body such as on cheeks, legs, lips, buttocks or any other part of body and on some objects or materials. These may be observed on arm or face of attacker showing victim's defence against attacker. Therefore crime scenes must be thoroughly searched in order to find bite marks that may link a biter to the crime scene. Human bite mark analysis is by far the most demanding and complicated part of forensic dentistry. Although bite marks of an individual do have uniqueness due to specific characteristics and arrangement of the teeth, when it comes to bite mark analysis, it is complicated by numerous factors, being presented as a challenge to the forensic odontologists. This presentation gives an overview of bite mark analysis including its usefulness and shortcomings.

Keywords: Forensic Dentistry, Bite Mark, DNA Profiling, Tongue Prints, Victim.

PPA04

ASSESSING THE ASSESSMENT: INDONESIAN FORENSIC PATHOLOGY RESIDENCY TRAINING NATIONAL EXAM

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Abstract

Background: Forensic Pathology Residency Training requires adherence to evolving graduate quality standards to meet service needs. A national competency exam has been conducted since 2002 to ensure these standards are met, necessitating periodic evaluations. **Research Objectives:** To ensure the national exam for Forensic Pathology Residency Training assesses essential competencies, enabling participants to provide high-quality forensic pathology services. **Methods:** Action research consisting of four cycles: Planning, Action, Observation, Reflection. **Results:** Planning - Blueprint inadequately reflects current competency standards. Competencies assessed are unspecified. Existing MCQs and OSCE tools are insufficient. Preparation by a national committee with a need for benchmarking. Exam conducted using MCQs, OSCE, and case reports. Pass/fail criteria established by the national committee. No specific feedback provided. Action - Competency standards mapping identified 34 Issues/Disorders, 46 Topics (Cognitive), and 162 Skills (Skills domain). Cognitive assessment methods: MCQs and panel exams. Skills assessment methods: OSCE, structured essay exams, and various skill assessments. Continued development of an item bank and computer application for specific feedback. Observation - Implementation identified unmastered topics by students from certain institutions. Curriculum improvement feedback provided to those institutions. Reflection - Continuous assessment is necessary to identify improvement areas. Specific and regular feedback is crucial for enhancing student and institutional performance. **Conclusions:** The assessment process can identify unassessed competencies and highlight institutions needing performance improvement to ensure graduates meet competency standards.

Keywords: Forensic Pathology, OSCE Tools, MCQs.

PPA05

RODENTICIDE POISONING: A CASE SERIES OF DELIBERATE SELF-HARM ADMITTED TO A TERTIARY HEALTH CARE HOSPITAL IN NORTHERN KARNATAKA

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Abstract

Rodenticides or "rat poisons" are mixture of compounds to eradicate rodents. They are the most toxic compounds with various chemical composition, mechanism of action, toxic doses, and lethal effects. Coumarins, aluminium phosphide, zinc phosphide, and yellow phosphorous are the most used rodenticides for deliberate self-harm (DSH). The use of pesticides as agents of deliberate self-poisoning (DSP) is on the rise, with more than 500,000 cases reported worldwide annually. The National Poison Information Centre (NPIC) is a round-the-clock telephone service meant for dissemination of information regarding the symptoms and management of various poisonings. It is managed by the Department of Pharmacology at the All-India Institute of Medical Sciences. In a retrospective study, data over 13 years were analysed from the NPIC. Of 14,867 cases reported to the NPIC, 17.06% were due to rodenticides. Rats are the most destructive pests damaging crops and for preventing these pests, rodenticides are commonly used in our agricultural sector and homes. In the absence of a definite antidote, mortality in patients with rodenticide consumption is high. The rapid action, easy availability, and high toxicity for the target species at an economic deal has made this compound an ideal agent with misuse for suicidal poisoning. This case series presents four cases of rat poisoning admitted to a tertiary health care hospital which helped us in identifying the clinical features of certain rat poisons and diagnosing the rat poison by means of Poison detection center and which will help the treating physician to reduce the mortality in future.

Keywords: Rodenticide Poisoning, Zinc Phosphide, Bromadiolone, Deliberate Self-Harm, Suicide.

PPA06

**WIDENING THE DAMAGE: WHEN UNTRAINED VICTIM PROFILING
IS NOTHING MORE THAN BIAS**Marcela del Sol-Hallett¹¹Criminal Profiler, Criminologist, Director of PROYECTO 360, Chile, Australia**Abstract**

Criminal profiling is a very effective investigative tool, aiding investigators to identify the author of a crime. This discipline, developed in the 70's by the FBI, has greatly progressed: including a wider array of sciences and the acknowledgment of other aspects, such as geography, as of paramount importance to approximate the identity of said individual(s) in order to facilitate their capture. Consequently, allowing the relevant judicial process to determine a just punitive measure, that often times is insufficient when compared to the damage inflicted upon their victims. This is particularly truthful when we analyze gender crimes. From this, we understand that there are three elements that must converge in order for crime to exist: criminal, victim and opportunity. Based on what has been expressed, only two of these aspects are being appropriately dealt with through our practice of criminal profiling: criminal and opportunity. Despite all the efforts and advances in the theory and praxis of investigation, advocacy, etc., it seems that victims continue being eradicated from the center of their own experience; permitting that institutions, that must serve them with respect and understanding, implicitly see themselves as entitled to exert pseudo profiling techniques: drawing moral and behavioral judgments upon them. Even when not trained to do so. This presentation examines the case of a young woman who was abducted for more than twenty days, and sexually assaulted throughout this period, and resulted in the exoneration of the two men who were identified by the victim, found by the police in the premises when rescuing the victim, and other strong evidence that pointed at their culpability, partly because of the moral and behavioral bias against the victim, as recorded in writing by the police when taking the woman's declaration.

Keywords: Criminal Profiling, Victim Profiling, Chilean Police, Institutional Violence, Victimology, Gender Violence.

PPA07

FORENSIC ANALYSIS OF DRUG SEIZURES: CHALLENGES AND SOLUTIONS

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Abstract

Introduction: The forensic analysis of drug seizures is a critical component in the fight against illicit drug trafficking. The complexity of recently seized drugs poses significant challenges for forensic scientists. This study aims to address these challenges by examining the difficulties faced by forensic analysts and the solutions offered by advanced analytical techniques and methodological approaches that improve the identification and quantification of seized drugs. **Methodology:** This study examines the current state of forensic drug analysis and provides a comprehensive review focusing on essential validation processes such as calibration, precision, accuracy, and specificity, which are crucial for creating robust analysis protocols. The study also explores innovative approaches such as chemical profiling and isotope analysis to trace the origins of seized drugs to clandestine laboratories. **Results:** The study highlights the practical applications and challenges in forensic investigations, emphasizing the importance of improving the detection of traditional and designer drugs using advanced analytical techniques. It underscores the significance of method validation in ensuring the reliability of analytical results, thereby supporting legal proceedings and law enforcement authorities. **Conclusions:** The study underscores the need for continued research and development to address the challenges posed by designer drugs and to strengthen the link between seized drugs and clandestine laboratories. These steps are critical to maintaining the effectiveness and reliability of forensic drug analysis in the face of the evolving illicit drug landscape.

Keywords: Drug Seizures, Designer Drugs, Forensic Drug Analysis, Forensic Challenges, Clandestine Laboratories.

PPA08

INTRAORAL SCANNING AND RADIOGRAPHY IN DENTAL AUTOPSIES FOR UNIDENTIFIED HUMAN REMAINS: TWO CASE STUDIES

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¹Univerity of Turin, Italy

Abstract

Dental autopsies are an essential component of the forensic investigation process to aid in the identification of unidentified human remains. The case report describes two dental autopsies performed on unidentified bodies recovered from the sea in Sicily, conducted at different times and with different protocols. In both cases, the ethnicity, age range, and an accurate odontogram were determined to assess the generic biological profile and search for compatible missing persons. In the first case, advanced imaging techniques like CT scans and dental impressions were used, while in the second case, intraoral scans and periapical radiographs were employed. The case studies highlight the advantages of using diverse equipment and digital techniques, emphasizing the crucial role of forensic odontologists in performing these procedures. The purpose of the case report is to compare the two processes used in these dental autopsies, emphasizing the importance of intraoral scanning and complete dental radiography for accurate and complete identification. The lack of applying these standards should be considered an act of negligence.

Keywords: Dental Autopsy, Intraoral Scanning, Missing Persons, Forensic Odontology.

PPA09

**GC-MS ANALYSIS OF THC CONTENT IN CANNABIS SATIVA LEAVES:
GEOGRAPHICAL AND SEASONAL INDICATOR**

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Abstract

Introduction: Cannabis sativa, an annual herb which is ubiquitous used by people all across the world which contains several phytocannabinoids and among them, THC (delta-9-tetrahydrocannabinol) is the primary phytocannabinoids in Cannabis sativa plants. Cannabinoid content (concentration) in the leaves of Cannabis sativa plants was also found to vary across seasons and geographical location, due to variation in temperature, humidity and frequent rains. **Materials & Methods:** GC-MS analysis of the delta-9 tetrahydrocannabinol (THC) content from the Cannabis plant leaves collected from three States -Haryana, Punjab and Himachal Pradesh located in northern India was performed. **Results:** Inter-state and Intra -state studies of seasonal & geographical variation in forensically important cannabinoid (THC) in Cannabis sativa leaves (male to male & female to female) obtained from different geographical sites was carried out. The seasonal concentration of THC in Punjab and Haryana is highest in monsoon season followed by summer, autumn and winters. In Himachal Pradesh, the concentration is highest in monsoon followed by autumn, summer and winters. As far as geographical location is concerned Himachal Pradesh Exhibited the highest THC concentrations, especially in Kullu followed by Chamba, Kangra, Shimla and Sirmaur; in Punjab: Pathankot recorded the highest THC levels, followed by Ludhiana, Mohali, Firozpur, and Mansa; and in Haryana: Panchkula had the highest THC concentrations, followed by Karnal, Rohtak, Sirsa, and Rewari. When the THC content of male and female cannabis sativa plant is compared, no intra state significant variation was found but significant interstate variations in concentration of THC in leaves of male and female Cannabis sativa plant were found.

Keywords: Cannabis Sativa, Phytocannabinoids, Cannabinoid, Geographical Variation, THC.

PPA10**NEED OF CRITICAL DUE DILIGENCE IN BANKS TO PREVENT
DOCUMENT FRAUDS**Satish Hulyar L¹¹C4E Institute for Investigative Studies, Bengaluru**Abstract**

Presently, Banking Industry in India is moving towards digitalisation of credit portfolio under Retail Lending, Agriculture and MSME. Under the digital platform, processing, sanctioning and disbursing of the loans will happen digitally. However the most important aspect of the credit portfolio which is “Documentation” should be handled manually with proper due diligence. Though the documents are generated digitally at the time of loan disbursement, there is a need to verify the genuineness of the documents submitted by the borrower before disbursement of the loan. Particularly, when the loan is sanctioned against collateral security, it is mandatory to check the genuineness of the documents related to the collateral security, before mortgaging the same. Banking industry has come across various frauds in the recent past related to submission of fraudulent documents in both asset and liability products offered by the Banks. The present paper deals with the preventive measures a Banker should adopt before accepting the documents for providing any banking services. The data on Document Frauds are based on the frauds reported by the banks to RBI which is available on public domain of Banks and RBI. The conclusion of the study will help the bankers in framing proper due diligence to avoid document frauds.

Keywords: Documentation, Collateral Security, Mortgage, Fraudulent Documents, Due Diligence.

PPA11

INTRACRANIAL HEMORRHAGE DUE TO SNAKE ENVENOMATION IN AN ELDERLY FEMALE: AN AUTOPSY CASE REPORT

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Abstract

Introduction: Snake bite envenomation is an acute life – threatening medical emergency. India which is called as the land of snake charmers has an incidence of 1.2 million deaths due to snake bite from 2009 to 2019 with an average mortality of 58,000(1). Ophitoxaemia rarely results in neurological conditions such as an intracerebral Hemorrhage (ICH) which occurs with venom induced consumptive coagulopathy. Life threatening neurological complications such as intracerebral hemorrhage following snake envenomation are rare and infrequently noted in literature. **Case report:** here, we report an unusual complication of intracerebral haemorrhage following a snake bite in elderly healthy female revealed after post mortem examination. **Conclusion:** Intracranial haemorrhage is an uncommon but potentially fatal complication of viper envenomation.

Keywords: Elderly Female, Autopsy, Snakebite Envenomation, Intracranial Hemorrhage.

PPA12

A PILOT STUDY ON THE IDENTIFICATION OF BLOOD USING RAMAN SPECTROSCOPY

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Abstract

Blood is frequently found at crime scenes, either as dried stains or in liquid form, yet it's often in limited quantities. Traditional tests for blood can sometimes damage the sample, hindering deeper analysis. Recent scientific work has highlighted Raman spectroscopy as a non-invasive method for identifying bodily fluids. This study delves into the sensitivity and accuracy of Raman spectroscopy in identifying blood, using the Raman peakseeker™-PRO785 for our analysis. Our study demonstrated that Raman Spectroscopy can detect blood even when diluted up to 1:250 with water. Additionally, this technique successfully identified blood in aged samples. In essence, this study underscores the importance of Raman spectroscopy in identifying various body fluids.

Keywords: Raman Spectra, Human Blood, Sensitivity, Specificity.

PPA13

MYSTERIOUS METAL PIPE FOUND IN THE RAILWAY TRACK: PLANNED FOR SABOTAGE OR BOGUS?

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Abstract

Crime scene investigation, generally called CSI, involves visiting crime scenes whenever police called, even at odd hours or holidays. CSI has to examine the crime scene, identify the presence of scientific evidence left by the perpetrator, and collect the same for the forensic laboratory analysis. The CSI has to document the crime scene through sketches, photography and videography on special occasions. Crime scene investigators face many challenges in solving the mystery crimes since criminals use many techniques during their operations and confuse the investigations. In many countries, police are doing the forensic crime scene investigation while in India, Forensic Scientists are involved in the crime scene investigation and assisting the police investigation. The presentation is my real crime scene investigation. One day morning around 6.30 am, I received a call from the police station and requested me to come to a railway track in a particular place. Usually, the Police asked me to come to the police station and, from there, take me to crime scenes like homicide, house breakings, robbery, dacoity, industrial accidents, suspicious deaths and many others. Accordingly, I reached the railway track at the specific place, wherein many police officers including Deputy Commissioner of were waiting for my arrival. Later the Deputy Inspector General Police also arrived the place. From a distance, the Deputy commissioner showed me a pipe-like found in the middle of the railway track. Some of the IED explosives may explode if we touch the same and cause casualties. Recently, Police have been receiving bomb threats globally, which later turned out to be bogus. I am sharing my crime scene investigation here, which was unforgettable in my forensic career in India.

Keywords: Crime Scene Investigation, Railway Track, Mysterious Object, IED, Bogus.

PPA14**SEX DETERMINATION USING RAMUS AS A TOOL – A
RETROSPECTIVE STUDY**Dr. Salma Rashid¹¹MDS Oral Medicine and Radiology**Abstract**

Introduction: Sex determination is an important aspect of forensic odontology which is used in case of disasters, crime scenes. Both the dentition and bony framework can be used for this purpose. Mandible being the strongest bone in skull can also be used for gender determination using various parameters. **Aim of the study:** To determine gender using the condylar height and mandibular ramal breadth using orthopantomogram. **Method:** A retrospective study was conducted on 100 individuals (50 males, 50 females; mean age 34.69 ± 1.85 years) with orthopantomograms obtained from the radiology archive of department of oral medicine and radiology. Linear parameters were measured in mm. The measurements were recorded from the both of right and left side and the data between groups was evaluated with Student t-test. **Results:** In our study two parameters of mandible were measured and mean values were determined and the values were higher in males compared to females. It was found that all variable of mandibular ramus on orthopantomograms showed a statistically significant difference among the sex ($p < 0.05$). **Conclusions:** Mandibular ramus measurements can be used as a valuable tool for sex determination. However further studies with larger populations are needed to reveal this relation.

Keywords: Ramus, OPG, Condylar Height, Breadth.

PPA15**PLANT POISONINGS IN INDIA: FORENSIC ANALYSIS,
INVESTIGATIVE CHALLENGES, AND LEGAL IMPLICATIONS**Ms. Madona Mathew¹

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Jharkhand & Ph.D Scholar, BIT Mesra, Jharkhand

Abstract

The intersection of plant toxins and criminal activities presents a multifaceted challenge for forensic investigations in India. This review delves into the diverse landscape of plant toxins implicated in criminal cases across the country and the pivotal role of forensic science in elucidating such incidents. India boasts a rich biodiversity, hosting numerous plant species containing toxins with potential forensic significance. Poisoning cases involving plants such as aconite, strychnine, and datura are not uncommon, often resulting in severe morbidity or mortality. Forensic scientists play a critical role in identifying these toxins through analytical techniques like chromatography, mass spectrometry, and immunoassays, thereby aiding in the diagnosis and prosecution of toxin-related crimes. Furthermore, forensic botanists contribute expertise in identifying plant materials found at crime scenes, linking suspects to the scene of the crime. Challenges persist, including the variability of toxin concentrations in plants, the need for rapid and sensitive detection methods, and the interpretation of forensic botanical evidence. Collaboration between forensic laboratories, law enforcement agencies, and botanical experts is essential for addressing these challenges and enhancing the forensic investigation of plant toxin-related crimes in India. This review underscores the importance of continued research, education, and interdisciplinary cooperation in advancing forensic science's capabilities to combat plant toxin-related criminal activities effectively.

Keywords: Plant Toxins, Criminal Activities, Forensic Investigations.

PPA16

**PERSONAL IDENTIFICATION OF FINGERPRINTS BY USING
QUADANT BASED METHOD**Jaswinder Singh Chouhan¹, Mukesh Kumar Thakar²¹Assistant Professor, Centre for Distance and Online Education, Punjabi University, Patiala²Professor, Department of Forensic Science, Punjabi University, Patiala**Abstract**

In the present study, 480 rolled fingerprints of distal phalanges were taken from 48 individuals (24 males and 24 females) belonging to Yadav population residing in Punjab. Pattern type of each fingerprint was determined as arch, whorl, loop, composite etc. and frequency of each fingerprint pattern type was calculated for the given population. Till date the fingerprints are compared by matching the location of minutiae present therein the pattern. But in the present study, an attempt has been made to compare the fingerprints by using a quantitative method to identify the individual from fingerprints. In this method, core and deltas were marked. After marking the core and delta, typelines were drawn and then the number of intervening ridges between core and type lines at eight different (quadrants) positions has been counted to evaluate the individuality of fingerprints. Number of intervening ridges between core and typelines at 8 different positions were then fed into an excel sheet for analysis. Results obtained were analyzed statistically by using SPSS software. The number obtained at every position was counted individually and in combination found to be highly variable among the Yadav population of Punjab. The Statistical analysis shows that the results obtained by using above method found to be statistically significant with p value $0.001(<0.05)$.

Keywords: Fingerprints, Personal Identification, Quantitative Method and Yadav Population.

PPA17

AN ANTHROPOMETRIC ASSESSMENT OF PHILTRUM

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Abstract

Six hundred normal individuals (females) of different age groups from Lucknow (India), belonging to Rajput(R) & Brahmin (B) community were included in this study. Various dimensions of philtrum, lips and mouth were measured. The results were compared with the available data for Nepalese, Malays and Indonesian Adults. In the population under study the philtrum, lips and mouth measurements differ in all dimensions with all the compared populations and show no resemblance to the any. The analysis of the data does not simply indicate the differences in the measurements throughout the world, but also points out changes which may have a forensic and clinical significance.

Keywords: Anthropometry, Philtrum, Lips, Females.

PPA18

EXPLORING DIGITAL INTELLIGENT AGENTS AND THEIR ROLE IN CRIME SCENE INVESTIGATION SIMULATION TRAINING

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Abstract:

This paper explores the concept and definition of digital intelligent agents, highlighting their significance in the modern era of information technology. These agents, underpinned by digital data and artificial intelligence, exhibit capabilities such as self-awareness, decision-making, and learning, and are designed to closely mimic their real-world counterparts. The paper delves into the application of these agents in simulation training for crime scene investigation, emphasizing their role in creating immersive and interactive virtual environments that enhance the realism and effectiveness of training. By utilizing technologies like VR, AR, and MR, digital intelligent agents facilitate a comprehensive and practical learning experience, addressing the limitations of traditional simulation methods. The integration of reinforcement learning algorithms further enables these agents to continuously improve their performance, providing personalized training outcomes. The management and coordination of these agents within a unified framework ensure their autonomy and collaborative functionality, paving the way for innovative and efficient training methodologies in crime scene investigation. The study underscores the transformative potential of digital intelligent agents in bridging the gap between theoretical knowledge and practical skill development.

Keywords: Artificial Intelligence; Digital Intelligent Agent; Crime Scene Investigation; Simulation Training; Immersive Human-Computer Interaction.

PPA19

RAINY SEASON AND CRIME INVESTIGATION CHALLENGES FACED BY POLICE IN BELAGAVI DISTRICT, KARNATAKA: A CASE STUDY

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Abstract

The rainy season in Belagavi district, Karnataka, significantly impacts crime investigation and law enforcement. This case study explores the unique challenges faced by the police during the monsoon months, characterized by heavy rainfall and frequent flooding. Key issues include accessibility problems due to flooded and blocked roads, communication disruptions from power outages and network failures, and difficulties in preserving physical evidence compromised by rainwater. Additionally, opportunistic crimes increase during this period and police resources are often diverted to disaster relief, further complicating crime prevention efforts. The health and safety of police personnel are also at risk due to exposure to harsh weather conditions and operational hazards. A specific incident in August 2023 highlights these challenges, illustrating delays in response, compromised evidence, communication breakdowns, and an uptick in petty crimes. To address these issues, recommendations include infrastructure improvements, advanced training for officers, technological integration, community engagement, and optimized resource allocation. Proactive measures and adaptive strategies are essential to enhance the effectiveness of police operations during the monsoon season, ensuring public safety and efficient crime investigation.

Keywords: Rainy Season, Crime Investigation, Law Enforcement, Belagavi District, Monsoon Challenges, Accessibility Issues, Communication Disruptions, Evidence Preservation, Opportunistic Crimes, Disaster Relief, Police Health and Safety.

PPA20**CRIME SCENE INVESTIGATION AND RECONSTRUCTION**Smt. Priyanka Chavan¹¹Assistant Professor, K.L.E. Society's Law College, Chikodi**Abstract**

The Forensic Science plays a crucial role in crime scene investigation and criminal justice system. Because of lack in knowledge, the issues may arise like mishandling of evidences and contamination of evidences. This will definitely affect the outcome of case. Therefore it is very very important to know about Crime Scene Investigation and Reconstruction. This Research Paper gives information regarding manner of visiting crime scene; collection of physical evidences and its types; Preservation of evidence, Packing, Naming. Crime scene process involves certain steps and techniques such as-Arriving on scene, Review of scene or formulating plan, Diagram of scene, Collection, Packing and Tagging with appropriate information. This paper also throws light on investigation of crime scene if it is involving the Blood Stains. While considering blood stains at spot, expert has to follow classification of blood stain patterns so that he can identify some crucial points with respect to crime and offender. This blood stain patterns is nothing but the interpretation of blood stains at a crime scene. The experts examine the size, shape, distribution and location of blood stains in order to form opinion regarding the way of happening of an offence. And where the crime is committed with the help of ballistics, it is very much important to identify firearms and ammunition. This paper will explore the various types of ballistics; identification of firearms and ammunition; and methods of examination of ballistic weapons. One of important stage in the investigation is the identification of human, where the body is completely decomposed. In such cases forensic Anthropologists analyze the skeleton and assess the age, sex and some of unique features of a decedent. And they estimates that how long the corpse has been decomposing.

Keywords: Forensic Science, Crime Scene Process, Blood Stain Pattern, Forensic Anthropology, Ballistics.

PPA21

RECENT ADVANCES IN FORENSIC TECHNIQUES FOR ECOSYSTEM ANALYSIS

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Abstract

The health of our planet depends on ecosystems, which are intricately linked systems. However, because of human activity and environmental changes, they confront many hazards and challenges. The most current developments in forensic methods used in ecosystem analysis are examined in this paper. This article explore state of the art techniques including Geographic Information Systems (GIS) and remote sensing, stable isotope ecology, environmental DNA (eDNA) analysis, machine learning, forensic palynology and plant science, bioinformatics and big Data, modeling and 3D printing, chemical fingerprinting, Light Detection and Ranging (LiDAR), forensic entomology, sensor networks and the Internet of Things (IoT), hyperspectral imaging, barcoding of DNA, artificial intelligence (AI) and machine learning, acoustic monitoring and analysis of micro and nano plastics. The ecosystem can be improved comprehensively, lessen ecological damage, and promote a more sustainable coexistence with nature by embracing and incorporating these cutting-edge methods.

Keywords: Forensic Techniques, Ecosystem, Forensic Science, Environmental Change, Human Activity, Ecosystem Analysis.

PPA22

SEXUAL DIMORPHISM ASSESSMENT BY LINEAR ODONTOMETRIC IN A NAVI MUMBAI POPULATION OF MAHARASHTRA: A CROSS-SECTIONAL STUDY

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Abstract

Teeth are the strongest structures resistant to mechanical, thermal, chemical, and taphonomic decay. Teeth are important in constructing a biological profile of unidentified human remains. The teeth can be used for dental gender identification by metric and non-metric methods. Genetic, racial, cultural and environmental factors influence the size of the tooth. A few odontometric studies were performed in different population groups of India, No study was conducted to determine sexual dimorphism by linear odontometric analysis in the Maharashtrian population. Aim: To determine the sex of an individual by Odontometric analysis in a sample of a Maharashtrian population. Materials and Methods: After obtaining written consent from the participants, impressions of the maxillary and mandibular arches were taken using dental alginate from undergraduate and postgraduate students of our college. Casts were poured using dental stone. The mesiodistal (MD), and buccolingual (BL) dimensions of all teeth, excluding third molars, were measured on the casts using a digital caliper calibrated to 0.01 mm. A total of 180 samples were taken. Results: In the Maxillary arch canine, buccolingual and first premolar mesiodistal measurements significantly show greater measurements in males compared to females. On comparison between Maxillary and Mandibular arches maxillary lateral incisor buccolingual measurements and mandibular first premolar mesiodistal measurements were substantially larger in comparison to mandibular arch. The accuracy rate for males is a little less (72.2%) compared to females (73.8%) by using linear measurements. Conclusion: The overall accuracy rate for sex determination is 73% in the Maharashtrian population using MD and BL measurements. Maxillary canine and Maxillary first premolar are the strongest predictors of sexual dimorphism in Maharashtrian population.

Keywords: Sexual Dimorphism, Odontometrics, Mesiodistal Diameter of Crown, Maharashtrian Population, Buccolingual Measurement.

PPA23

ADVANCEMENTS IN FORENSIC ODONTOLOGY THROUGH NANOTECHNOLOGY

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Abstract

Introduction: Nanotechnology in forensic odontology involves the application of nanoscale materials and technologies to aid in dental investigations and forensic analyses. This emerging field enhances the precision and effectiveness of forensic methods. Here are key areas where nanotechnology is applied in forensic odontology: 1. Detection of Saliva and Blood Traces: Nano-biosensors are used to detect minute traces of saliva and blood at crime scenes. 2. Dental Identification: Nanoparticles: Dental materials, like fillings and crowns, can be tagged with nanoparticles. 3. Age Estimation: Enamel Analysis: Nanotechnology allows for detailed analysis of tooth enamel at the molecular level. 4. DNA Extraction and Analysis: Nano-magnetic beads: These can be used to improve the efficiency of DNA extraction from dental tissues. 5. Antimicrobial Applications: Nano-coatings: Antimicrobial nano-coatings on dental instruments and materials can prevent contamination and degradation of samples, preserving evidence integrity. 6. Forensic Imaging: Nano-imaging techniques: Techniques like Atomic Force Microscopy and Scanning Electron Microscopy provide high-resolution images of dental structures, aiding in detailed forensic analyses. 7. Identification of Dental Work: Nano-markers: Unique nano-markers can be incorporated into dental materials during manufacturing. **Advantages:** enhanced sensitivity and accuracy, minimally invasive and speed and efficiency. **Disadvantages:** cost, technical expertise and regulatory issues. **Conclusion:** Overall, nanotechnology holds significant promise in advancing forensic odontology, providing tools for more precise and efficient forensic investigations.

Keywords: Nanotechnology, Forensic Odontology, Nano-Biosensors, Nano-Imaging Techniques, Nanoparticles, Nano-Markers, Nano-Coatings, Nano-Magnetic Beads.

PPA24

DIGITAL DECEPTION: THE RISE OF HONEY TRAPS IN THE ONLINE ERA

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Abstract

The digital era has drastically changed the terrain of deceit, with honey traps becoming a common and sophisticated hazard in online contexts. These schemes include the purposeful construction of fictitious personas, which are frequently used to trick unsuspecting people into vulnerable circumstances that can be abused for financial gain, espionage, or personal manipulation. The major goal of this research is to analyze the processes and tactics underlying current honey traps, evaluate their impact on victims, and offer detection and preventive strategies. By investigating real-world incidents, the study hopes to illustrate the changing nature of these traps, as well as the psychological and technical techniques utilized by offenders. The study also looks into the ethical implications and the role of digital literacy in preventing such dangers.

Keywords: Digital Deception, Honey Traps, Online Fraud, Social Engineering, Cyber-Espionage, Digital Literacy, Ethical Implications.

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SPA01

BATTERED CHILD SYNDROME: AGE OF BRUISES CAN BE A CLUE

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Abstract

Objective: This case report highlights the presence of utilizing the spectrum of bruise colors as diagnostic indicators for identifying battered child syndrome. **Methods:** A child experiencing head and abdominal trauma. The head trauma forms a cracked line in the parietal cranial bone, culminates in a lethal outcome, implicating it as the putative cause of demise. Notably, the parietal bone emerges as the predominant locus of cranial fractures, whether abusive or accidental. Additionally, the abdominal trauma presents as bruising with varying colors. **Results:** Battered child syndrome represents a profoundly tragic and morally reprehensible crime, yet it remains challenging to uncover. Initial suspicion may be aroused by incongruities in injury chronology or in instances where the etiology of mortality eludes definitive determination. Notably, nearly one-third of children below the age of two who are subjected to violence suffer from cranial fractures. However, some cases do not always exhibit external signs of trauma. **Conclusion:** Bruise color tends to change based on the duration of the bruise. The presence of bruises is generally considered an indicator of violence. Bruises of varying ages can indicate continual or regular violence.

Keywords: Battered Child Syndrome, Bruise, Trauma, Violence, Children.

SPA02

USE OF ANTHROPOMETRY IN PERSONAL IDENTIFICATION: A REVIEW ON SOMATOMETRY

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Abstract

The human body is composed of diverse systems that can be analyzed through a system of basic measurements known as anthropometry. By integrating the principles of anthropometry with criminal investigation techniques, we can achieve objective results using fundamental tools related to the human body. This paper highlights the importance of somatometry, cephalometry, craniometry, and osteometry in the identification of human remains. These methods are crucial for aiding the legal community and supporting criminal investigations in matters such as ancestry, race discrimination, and personal identification. Furthermore, the analysis of badly decomposed human bodies can form the basis for extensive investigations. In the hands of skilled anthropometrists, anthropometric techniques are highly objective and reliable.

Keywords: Anthropometry, Personal Identification, Somatometry, Forensic Investigation, Human Remains, Ancestry.

SPA03

MICROSCOPIC ANALYSIS OF WRITING ON DISRUPTIVE PAPER

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Abstract

Across the globe the rate of forgery could be seen as high as any other crime. Different types of forgery take place around us such as money, work of art, documents, certificates, diplomas etc. It is very important for finding such documents as it could have vital information /evidence in a case. Through microscopic investigation, the study seeks to understand the structural properties and consequences of disruptive paper. The microscopic analysis makes it possible to see the disruptive paper's microstructure, surface topography, and distinctive features; the researcher's conclusions have ramifications for other fields where anti-counterfeiting and document security procedures are essential. These include safeguarding important government paperwork, contracts, identity cards, money, and financial data. However, it's difficult and a tedious process for a forensic expert to find such a document, check its integrity and prove it in the court of law. Questioned Document is any document which is questioned of its genuinity and authenticity, be it the handwriting / signature on the document or the whole document as such. This research is conducted in understanding the various aspects of paper, mainly fibre arrangement and the effect of different disruptive methods on a surface level. The research aims to investigate how different types of disruptive paper affect the legibility and durability of writing and of finding a preliminary method to understand the authenticity of the document. Various samples of disruptive paper were examined under a microscope to analyse the impact on ink absorption, smudging, and overall writing quality. The findings of this study provide valuable insights into the characteristics of disruptive paper and its implications for writing. Understanding these factors can lead to the development of improved paper products that enhance the writing experience.

Keywords: Microscopic Analysis, Paper's Microstructure, Surface Topography, Fibre Arrangement, Preliminary Method, Authenticity of the Document, Impact on Ink Absorption, Smudging, and Overall Writing Quality.

SPA04

ROLE OF MATLAB SOFTWARE IN MULTIMEDIA FORENSICS: TECHNIQUES, APPLICATIONS AND ADVANCEMENTS

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Abstract

A vital topic that includes many methods for verifying, examining, and interpreting multimedia data for security and legal reasons is multimedia forensics. MATLAB software has become an indispensable resource in this field, providing a vast range of functions catered to the complex requirements of multimedia forensics. This abstract clarifies the relevance, uses, and developments of MATLAB in multimedia forensics, highlighting its critical position in the field. Verifying the integrity and validity of multimedia content is crucial, and multimedia forensics, an interdisciplinary area at the nexus of computer science, signal processing, and forensic science, plays a key part in this process. The MATLAB software has become a highly effective tool in this field in recent years, with a multitude of functions catered to the complex requirements of digital media analysis. This review paper offers a thorough overview of the use of MATLAB software in multimedia forensics by examining the body of literature, highlighting significant developments, trends, and approaches, and evaluating their professional implications. This study intends to clarify the important contributions of MATLAB software in developing the state-of-the-art in multimedia forensics and influencing the future of digital media authentication through a methodical evaluation of the applications, problems, and future directions. To sum up, MATLAB software stands out as a key component in the field of multimedia forensics because it provides unmatched capabilities for machine learning, signal processing, and experimental investigation. Its flexibility, efficiency, and adaptability enable researchers and forensic analysts to address the complexities of digital media authentication and analysis, pushing the boundaries of forensic science and enhancing the reliability and integrity of multimedia data across a range of applications.

Keywords: MATLAB Software, Multimedia Forensics, Digital Image Processing, Image Forensics, Audio-Video Forensics, Machine learning-Deep learning, Artificial Intelligence.

SPA05

ESTIMATION OF AGE FROM THYROID CARTILAGE MEASUREMENTS

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³Assistant Police Surgeon, General Hospital, Ernakulam

Abstract

Background/Aim: One of the foremost aims of a medicolegal autopsy is to establish the identity of a person. Age estimation plays an important role in identification. The aim of this study was to correlate the morphometric measurements of the thyroid cartilage with the age of the individual. **Methods:** The present study was undertaken at General Hospital, Ernakulam, and Amrita School of Medicine, Kochi, during the period of May 29, 2023, to May 1, 2024. Thyroid cartilages from 126 cases (male: 92, female: 34) of postmortem were studied. The measurements were taken with the help of a digital goniometer (for thyroid angle measurement) and a digital vernier caliper (for the remaining measurements). A total of seven parameters were measured on each thyroid cartilage, and observations were made. **Results:** Maximum thyroid width showed a statistically significant mild negative correlation with age ($r = 0.918$ and $p\text{-value} = 0.001$). Other variables showed no statistically significant correlation with age. By regression analysis, a formula is derived from the Maximum Thyroid Width measure, as it shows a mild correlation.

Formula: $\text{Age} = 72.12 - (0.91 \times \text{Maximum Thyroid Width})$

But as the intraclass correlation coefficient is only 0.178 with a 95% confidence interval, which shows poor significance as it is <0.5 . The calculated age from the formula shows poor agreement with the observed age. Therefore, we cannot use the derived formula. **Conclusion:** The results of the current study indicated that in the Central Kerala population, the predictability of age from the morphometric measurements of thyroid cartilages is very low.

Keywords: Forensic Anthropology, Identity, Age Estimation, Thyroid Cartilage, Anthropometry.

SPA06**NATURE VS NURTURE: THE MAOA GENE**Sayudha Biswas¹¹National Forensic Sciences University, Tripura Campus**Abstract**

The exploration of the genetic contributions to antisocial criminal behaviors has been a longstanding subject of inquiry among numerous researchers. The genesis of this investigation dates back to the early 1990s, when a Dutch family was identified exhibiting markedly heightened levels of aggressive and antisocial criminal behavior among its male members. This familial cohort was found to harbor a rare mutation resulting in the complete absence of the enzyme monoamine oxidase A (MAOA). This enzyme is pivotal in the degradation of vital neurotransmitters, notably serotonin, within the brain. While an inactive MAOA gene is rare, common gene variants with differing efficiencies exist. Low-activity variants (MAOA-L) result in elevated serotonin levels compared to high-activity variants (MAOA-H). The MAOA gene, situated on the X chromosome, is anticipated to adhere to the conventional principles of X-linked gene expression. These principles inherently confer males with a significant biological disadvantage compared to females. The presence of the MAOA-L genotype was documented in records from 11 criminal cases (9 in the U.S. and 2 in Italy). During the guilt phase, genotype evidence was admissible in one of two cases, potentially influencing a conviction on a reduced charge. In the sentencing phase, genotype evidence was admitted in four out of five cases, resulting in a lesser sentence in one instance. Additionally, genotype evidence was used in post-conviction appeals in five cases, leading to sentence reductions in two instances. However, accurately assessing the impact of MAOA-L genotype evidence is challenging due to difficulties in establishing its specific influence on individual defendants. Despite its prevalence, the MAOA-L variation is more common than commonly assumed, yet only a subset of that population exhibits antisocial behavior. Conversely, children exposed to familial adversity demonstrate diverse mental health outcomes. Recent research suggests a gene-environment interaction involving the MAOA gene underlies these outcome variations.

Keywords: MAOA Gene, Mutation, Anti-Social Behaviour, X-Linked Gene Expression, Gene-Environment Interaction.

SPA07

PSYCHOSOCIAL PROFILING OF JUVENILES IN CONFLICT WITH LAW: AN EXPLORATORY STUDY IN INDIA

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Abstract

Juveniles in conflict with law are a significant part of society requiring special attention. They are a vulnerable population driven by a wide range of sociodemographic and psychosocial factors. Understanding these elements is critical to establishing effective interventions and policies. The purpose of this study is to explore the sociodemographic and psychosocial characteristics associated with juveniles in conflict with the law. The goal was to find trends in the key characteristics such as age, education, type of offenses, family dynamics etc. The study used an exploratory research design, with 21 juveniles identified through purposive sampling in Ahmedabad, Gujarat - India. Data was collected using structured interviews that comprised both open-ended and closed-ended questions. A descriptive statistical analysis was carried out to describe the data. The results revealed a complex profile of various sociodemographic & psychosocial parameters, reflecting substantial trends in all of them. These findings illustrate the multidimensional factors that influence juveniles in conflict with law. Understanding these factors and the role they play will allow stakeholders to build more effective prevention and mitigation methods for these adolescents.

Keywords: Juvenile in Conflict with Law, Psychosocial Factors, Delinquent Behavior, Profiling.

SPA08

STATURE AND BODY WEIGHT DETERMINATION FROM FINGER ANTHROPOMETRY AMONG MADURASE POPULATION IN MADURA ISLAND, INDONESIA FOR FORENSIC APPLICATIONUtheyashankeri R¹, Nataraja Moorthy T¹, Myrtati DA¹¹Management and Science University**Abstract**

As an accurate method for determining stature and body weight, finger anthropometry is crucial for forensic research, especially when identifying unidentified persons or body parts. The importance of finger measurements in establishing anthropometric characteristics and their consequences for forensic investigations are examined in this study. Anthropometry is a scientific technique used to measure human body parts or their impressions and to understand human physical variation for personal identification. This study investigated the relationship between finger anthropometry, body weight, and stature among the Madurese Indonesian population in Madura Island. The research recruited Madurese people (100 males and 100 females), an indigenous ethnic group born and living in Madura Island, Indonesia with ages ranging from 18 to 60 years. The sample collection was done by a student Miss Utheyashankeri from Malaysia. Considering the inclusion and exclusion criteria, finger anthropometric measurements, stature and weight were made in the presence of both supervisors Prof.T. Nataraja Moorthy and Prof Myrtati and the analysis was conducted at Management and Science University (MSU), Malaysia. . Ethical clearances were obtained from the Management and Science University, Malaysia, and the Airlangga University ethics committee. The weight and stature of the Madurese participants was measured using a portable stadiometer and the fingers with vernier calipers. The mean stature of males is comparatively higher than that of females. Similarly, the finger lengths of the males are higher than those of females, showing the general variation. Regression equations were developed to estimate stature from hand measurements of both genders (Nataraja Moorthy, 2014 & 2019). The Pearson correlation coefficient values (R) strongly correlated with stature and hand length measurements. The R values are positive and statistically significant ($p < 0.05$). The regression equations derived in this study can determine living stature from hand anthropometry among the Madurese population in Madura Island, Indonesia and achieve the research objective.

Keywords: Stature, Body Weight, Finger Anthropometry, Madurese, Indonesia.

SPA09

**QUANTITATIVE ANALYSIS OF DNA PROFILING ATTAINED FROM
VARIOUS CONDITIONS OF STERNUMS**

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Abstract

The sternum is a partially T-shaped vertical bone that centrally forms the anterior portion of the chest wall. It is divided anatomically into the manubrium, body and xiphoid process. The sternum connects the ribs via the costal cartilage, forming the anterior rib cage. The manubrium is the broad superior segment, the body is the middle portion, and the xiphoid process is a narrower distal segment forming the partial T-shape. Generally, two types of sternum bones are received in the forensic lab in missing identity cases: one wet bone with tissues attached to bone and preserved in a nanoporous container; in contrast, another type is wrapped in gauze/cloth and kept in an envelope to let it dry in normal environmental conditions. Typically, females have a shorter and thinner body of the sternum when compared to males. For forensic examination, forensic pathologists utilized certain chemicals to preserve unknown human body parts taken for identification via DNA analysis. Quantitation of DNA plays a vital role in the analysis of forensic samples like bone, tissues or any other biological material so that forensic pathologists can take the optimum quantity of extracted DNA for amplification and profiling. Analysis of skeletal remains for forensic purposes may include the assessment of the sternum. Often, the forensic pathologist or osteologist aims to establish the forensic identity, which primarily consists of the ethnicity, sex, age and stature of an individual from the skeletal remains subjected to examination. Stature estimation from the sternum is done for the determination of sex, in addition to estimating age and height.

Key words: Sternum, Sex Determination, Stature Examination, DNA Analysis, DNA Profiling.

SPA10

FORENSIC ANALYSIS OF SECURITY FEATURE IN INDIAN CURRENCY

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Abstract

Counterfeit currency is referred to as fake currency, which is not genuine, but made to look exactly like genuine currency note in order to deceive people. Counterfeit currencies are currencies which are produced and used without the permission of concerned legal authorities. In order to avoid the banknote or currency forgery there are various security features present on the banknote such as paper quality, security thread, intaglio printing, latent image, watermark etc. These security features reduces the chances of counterfeiting. Section 498A to 498E of IPC 1860 talks about the punishment related to counterfeiting of banknote or currency. Methods used for counterfeit are digital printing, offset printing, bleaching. There are certain techniques available for detecting the counterfeit in currency such as manual inspection, UV light, magnification, machine verification and VSC. This research paper mark the importance of security features in banknote which used to prevent counterfeiting and corruption.

Keywords: Counterfeit, Banknote/Currency, Security Feature, Section 498A to 498E of IPC.

SPA11

EVALUATING XRY AND UFED EXTRACTION SUCCESS AND FAILURE RATES FOR PHONES GROUPED BY CHIPSET MANUFACTURER

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Abstract

This study evaluates the effectiveness of two mobile forensic data extraction methods, XRY and UFED, on phones categorized by their chipset manufacturer. The analysis aims to identify success and failure rates for each extraction method across different chipset brands. By comparing XRY and UFED, the research seeks to determine which method yields superior results for specific chipset manufacturers. Additionally, the investigation will explore whether certain chipset manufacturers are more suitable with either method. The findings of the study will be represented using graphs. The findings of this study can provide valuable insights for forensic practitioners, allowing them to make informed choices about data extraction techniques based on the phone's chipset manufacturer.

Keywords: XRY and UFED, Research, Data Extraction.

SPA12

ADULTERATION IN PACKAGED MILK PRODUCTS: IMPACT ON WOMEN'S HEALTH AND WELLBEING

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Abstract

Packaged milk offers convenience and is a popular choice for many urban dwellers with busy schedules, especially those working in metropolitan areas. Milk adulteration is a widespread issue for public health, notably affecting women's health and reproductive wellbeing. The inclusion of common adulterants such as water, urea, starch, and harmful preservatives like formaldehyde compromises the nutritional integrity and safety of milk. Women, particularly during their reproductive years, rely on the essential nutrients in milk—such as proteins, calcium, vitamins, and minerals to support overall health, hormonal balance, and foetal development. Adulterants dilute these vital nutrients, leading to deficiencies that can affect reproductive health, including menstrual irregularities, reduced fertility, and complications during pregnancy. Using colorimetric and qualitative analysis methods, this research study examines milk adulterants that are common in the Bangalore region. Chemical contaminants like urea and detergents can cause gastrointestinal issues, disrupt endocrine function, and introduce toxicity, further exacerbating health problems, complications during pregnancy, and developmental issues for the foetus. This study is focused on the urgent need for stringent quality control measures and heightened public awareness to prevent milk adulteration and ensure the health and safety of women. This paper will cover correlation between common milk adulterants used in the packaged milk packets and their effect on Women Health in Bangalore region.

Keywords: Milk Adulteration, Women's Health, Reproductive Wellbeing, Nutritional Deficiencies, Adulterants, Public Health.

SPA13

FROM GLASS TO GROWTH: ANALYSIS AND IMPACT OF COMMON MILK ADULTERANTS ON CHILDREN'S DEVELOPMENT

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Abstract

Milk is one of the most widely consumed beverages globally. To meet the high demand, milk adulteration has become prevalent, posing a significant public health concern, particularly affecting the growth and development of children. Common adulterants such as water, detergents, synthetic milk, urea, starch, and harmful preservatives like formaldehyde are frequently added to milk to increase volume and extend shelf-life, thereby compromising its nutritional integrity and safety. Children, especially during critical growth phases, rely heavily on milk for essential nutrients such as proteins, calcium, vitamins, and minerals. The addition of adulterants can dilute these vital nutrients, leading to malnutrition and growth deficiencies. Chemical adulterants like urea and detergents can cause gastrointestinal disturbances, impair nutrient absorption, and introduce toxicity, further exacerbating nutritional deficiencies. Furthermore, harmful chemicals such as formaldehyde in milk can lead to serious health issues, including developmental delays and potential long-term health complications. Exposure to these toxins can impair cognitive development, weaken the immune system, and hinder physical growth, using colorimetric and qualitative analysis methods, this study examines milk adulterants that are common in the Bangalore region. This paper covers the detection of common adulterants used in packaged milk packets and their impact on children's growth in Bangalore region.

Keywords: Milk Adulteration, Child Growth, Nutritional Deficiencies, Adulterants, Urea, Formaldehyde, Cognitive Development, Public Health.

SPA14

EYE MORPHOMETRIC ANALYSIS AND IT'S ROLE IN GENDER DETERMINATION AMONG MALAYSIAN INDIAN FOR PERSON IDENTIFICATIONShivaani Asokan¹, Prof. T. Nataraja Moorthy²¹Department of Health Science, Faculty of Health and Life Sciences, Management and Science University, Malaysia²Professor of Forensic Sciences, Faculty of Health and Life Sciences, Management and Science University, Malaysia**Abstract**

Background and Aim: This eye morphometric analysis is a non-invasive method of measuring and analyzing the physical characteristics of the eye to profile an individual. This study aims to investigate the relationship between gender and eye morphometry, particularly among the Malaysian Indian population to aid in person identification. **Methodology:** A total of 405 consented participants (190 males and 215 females) participated in this study. The eye morphometric measurements include several parameters namely (1) interpupillary distance, (2) interocular breadth (3) biocular breadth and (4) ocular breadth, measured using anthropometric technique with a digital vernier caliper. The results were analyzed using an independent t-test. **Result:** The results showed that Malaysian Indian males had a greater mean value for all the eye morphometric measurements (interpupillary distance, interocular breadth, Biocular breadth and Ocular breadth) than of the Malaysian Indian females. This signified the potential of eye morphometry analysis as a tool to discriminate gender. Statistically, the interocular breadth and ocular breadth of left and right eyes could be used for gender differentiation (t-test, $p < 0.05$), whereas interpupillary distance and biocular breadth showed no significant differences in distinguishing male and female individuals (t-test, $p > 0.05$). Overall, all parameters showed significant gender differences except for interpupillary distance and biocular breadth. **Conclusion:** The research findings can aid forensic investigations in differentiating gender using eye morphometric analysis. However, there could be a significant variability in measurements from person to person based on their ethnicity, so these measurements should not be the sole means of identification.

Keywords: Eye Morphometric Analysis, Gender Determination, Person Identification, Malaysian Indian, Forensic Anthropology.

SPA15

NON-INVASIVE IN-SITU IDENTIFICATION AND AGE DETERMINATION OF BLOODSTAINS VIA ATR-FTIR SPECTROSCOPY AND ADVANCED CHEMOMETRICS: TOWARDS A NOVEL GREEN FRAMEWORK FOR FORENSIC ANALYSIS.

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Abstract

Background: Bloodstains are crucial biological evidence in forensic investigations, and determining their age is essential for understanding the timeline of a crime. However, existing methods for age determination are often destructive and time-strenuous. **Aim:** Here, we evaluated the feasibility of attenuated total reflection-Fourier transform-infrared (ATR-FTIR) spectroscopy integrated with advanced chemometrics for in-situ age determination of bloodstains. **Methodology:** We simulated two indoor and outdoor storage settings to assess the age of human and animal blood spots deposited on various surfaces over a one-year period. Our results showed that ATR-FTIR analysis could successfully detect two distinctive blood protein bands (Amides I and II) in fresh and aged blood spots, regardless of surface interferences, for up to one year. We constructed 160 partial least squares regression (PLSR) models— 80 indoor and 80 outdoor. **Result:** The findings revealed that both indoor and outdoor models demonstrated high predictive accuracy with low RMSE and high R² scores. Interestingly, the outdoor PLSR models showed better predictive performance than the indoor ones, enhancing the practicability of our research. These models were further utilised to construct partial least squares-discriminant analysis (PLS-DA) models, demonstrating exceptional classification ability up to ~99% (indoors) and ~98% (outdoors) for aged blood spots of different species on various surfaces. **Conclusion:** Our study proves that integrating ATR-FTIR techniques with multivariate chemometrics offers a non-invasive and rapid strategy for determining the age of blood spots in forensic investigations with promising practical applications in actual cases.

Keywords: Age Determination, ATR-FTIR, Bloodstains, Chemometrics, Forensic, In-Situ.

SPA16

ENUMERATING ACTIVE HIDDEN SERVICES WITHIN THE TOR NETWORK USING A PYTHON CRAWLERS Megha¹, Prasannakumaran K.S²^{1,2}Dept. of Computer Science and Engineering, College of Engineering Kalliooppara, Thiruvalla Pathanamthitta, Kerala**Abstract**

Anonymizing networks like The Onion Router (TOR) are becoming more and more popular, and this has sparked concerns about websites that are kept anonymous behind something called hidden services. Scholars and cybersecurity specialists struggle to recognize and evaluate them due to their inherent obscurity, which makes it hard for them to understand how they integrate into the internet ecosystem. This work suggests a unique approach to this problem: a Python-based crawler created especially to handle the intricacies of the TOR network. Utilizing current findings in web crawling and data processing, the system navigates the TOR network to obtain raw HTML data directly from hidden services that are currently operational. Regular expressions are then used to carefully process this data in order to extract important characteristics about the type and distribution of these hidden services. Regular expressions function as digital filters. After being extracted, the data is put into a structured database that SQLAlchemy maintains, allowing for easy organization and retrieval for additional study. Using Flask, a user-friendly web interface is created to optimize the usefulness of this data. Researchers and cybersecurity experts can use this interface to explore interactively and gain deeper insights beyond just accessing the listed data. Many insights are obtained from the successful enumeration of operational hidden services. Researchers can examine patterns in the use of hidden services to learn more about the changing requirements and goals that these services serve. Cybersecurity experts can use this data to find possible risks that might be present within the TOR network, which can help with proactive risk management techniques. In conclusion, this paper offers a novel approach of counting the number of hidden services that are currently operational on the TOR network. A strong database, an intuitive web interface, and a Python-based crawler make this a potent tool for cybersecurity experts and researchers. This methodology clarifies the previously veiled terrain of TOR's hidden service ecology, facilitating a more profound comprehension of this ever-changing milieu and its ramifications for the virtual realm.

Keywords: TOR Network, Hidden Services, Python Crawler, Data Analysis, Web Interface.

SPA17

**DETERMINATION OF GENDER FROM NASAL ANTHROPOMETRY
AMONG MALAYSIAN TELUGU POPULATION IN PENINSULAR
MALAYSIA FOR PERSON IDENTIFICATION.**Suria Kalidas¹, Nataraja Moorthy T¹¹Faculty of Health and Life Sciences, Management and Science University, Malaysia**Abstract**

Background: Forensic science involves the examination and analysis of physical evidence to support criminal investigations, with anthropometry playing a crucial role in personal identification by measuring human body parts. This study was aimed to determine gender from nasal anthropometry among the Malaysian Telugu population in Peninsular Malaysia. Methodology: The research involved 150 male and 150 female participants, all Malaysian Telugu individuals aged 18 to 60 years. Nasal anthropometric measurements, including nasal length, nasal width, nasal height, alar width, columella length, nasal bridge, nasal depth, were measured using a Vernier caliper. The nasal index of both males and females was then calculated to estimate gender difference. Result: The results indicated significant gender differences in nasal dimensions, with males generally exhibiting larger nasal measurements than females. Notably, males had a mean nasal height of 6.3 cm compared to 5.5 cm for females, and a nasal width of 2.6 cm compared to 2.3 cm for females. The mean nasal index for male was 75.2, and for females it was 70.4. In this study all males and females of mesorrhine type nose were found to be common. P value of nasal index ≤ 0.001 and the t-value is -3.96. The result is significant at P & It; 0.005, does nasal measurements show the differences between male and female. Conclusion : The nasal measurements of the Malaysian Telugu males is slightly higher than that of females, the nasal measurements are statistically significant between genders, therefore nasal measurements can be used to determine gender differences.

Keywords: Forensic Science, Nasal Anthropometry, Gender Determination, Malaysian Telugu Population, Nasal Index.

SPA18

A REVIEW OF FORENSIC BALLISTICS: METHODS AND TECHNIQUES FOR CARTRIDGE CASE ANALYSIS

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Abstract

Forensic ballistics is a crucial discipline within forensic science, focusing on the identification and analysis of firearms, ammunition, and related evidence to assist in criminal investigations. This review paper provides a comprehensive overview of the methods and techniques employed in cartridge case examination, emphasizing their significance in weapon identification. Fired cartridge cases contain various marks on their surfaces, including striation marks, ejector marks, extractor marks, breech face marks, head marks, firing pin marks, firing pin drag marks, chamber striation marks, and magazine marks. These marks are unique to each firearm, making them critical for linking a cartridge case to a specific weapon. The challenges posed by cartridge cases fired from country-made weapons often exhibit irregular and unique markings due to unconventional manufacturing processes. These firearms, typically produced with less precision than standard firearms, create cartridge cases with distinctive characteristics that differ significantly from those of standard firearms. This complexity not only adds to the identification process but also provides unique forensic opportunities. The paper explores traditional techniques such as visual inspection and comparison microscopy, foundational methods in forensic ballistics that rely on expert analysis of microscopic and macroscopic markings. Modern advancements, including digital imaging and automated matching algorithms, have significantly enhanced the precision and efficiency of these examinations. Technologies such as the Ballistic Identification System (Ball Scan) are streamlining the comparison and identification of cartridge cases. Through a detailed examination of existing methodologies and recent advancements, this review aims to enhance the reliability and effectiveness of cartridge case analysis in criminal investigations.

Keywords: Forensic Ballistics, Firearms, Ammunition, Cartridge Case, Country-Made Weapons, Ballistic Identification System.

SPA19

COUNTERING TERRORISM: ADVANCEMENTS, CHALLENGES, AND CASE STUDIES

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Abstract

Terrorism remains a persistent and significant threat to global security, necessitating a multifaceted and continually evolving approach to counter-terrorism strategies. This paper explores the advancements, challenges, and insights gleaned from case studies in the field of counterterrorism. Recent technological advancements have markedly improved counter-terrorism efforts. Technological innovations such as big data analytics, artificial intelligence, and advanced surveillance techniques have enhanced intelligence gathering, threat detection, and communication interception. Additionally, advancements in forensic science, including DNA analysis, digital forensics, and biometric identification, have greatly increased the precision and efficiency of investigations. Enhanced international cooperation, characterized by increased intelligence sharing, joint operations, and capacity-building initiatives, has further strengthened global efforts. Moreover, there is an increasing focus on preventing radicalization through community engagement, education, and countering extremist narratives. Despite these advancements, counter-terrorism continues to face significant challenges. Terrorist groups continually adapt their tactics, exploiting new technologies, lone actors, and soft targets, necessitating constant updates to countermeasures. Balancing effective security measures with the protection of civil liberties and fundamental rights presents an ongoing dilemma. Additionally, addressing the root causes of extremism, such as social injustices, economic disparities, and political grievances, is crucial for achieving long-term success. Case studies provide valuable insights into the effectiveness and limitations of various counter-terrorism approaches. The international intervention in Somalia, for example, highlights the complexities of disrupting terrorist networks and fostering stability. Deradicalization programs demonstrate varying degrees of success in rehabilitating individuals and preventing recidivism. The use of social media by terrorist groups underscores the need for robust counter-narratives and online interventions. Countering terrorism requires a comprehensive and adaptive approach that leverages technological advancements, fosters international cooperation, and addresses the root causes of extremism while safeguarding civil liberties. By learning from past case studies and continuously refining strategies to meet evolving threats, societies can enhance their resilience against terrorism and strive for a more secure future.

Keywords: Counterterrorism, Advancements, Terrorism, Artificial Intelligence, Surveillance Techniques, Radicalization, Countermeasures, Somalia, Deradicalization, Extremism.

SPA20

FORENSIC PSYCHOLOGY AND ETHICS: LEGAL ISSUES AND CHALLENGES

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Abstract

In forensic psychology, ethical concerns are the intricate conundrums that arise in forensic settings, necessitating forensic psychologists to strike a balance between the requirements of legal duties and ethical principles. Forensic psychology, which integrates the fields of psychology and law, functions within a complicated framework of legal and ethical restrictions. Understanding these facets is crucial for practitioners as well as anybody interested in learning about this complex field. Conflicts between ethical norms and the law, or between several ethical guidelines, are frequently the source of ethical quandaries. This paper sheds light on the different stressful scenarios that arise in forensic psychology that are represented by the conflicts between dual roles, concerns about confidentiality, and informed consent. These ethical guidelines should be followed in all aspects of personality assessment, from choosing and administering tests to interpreting results and reporting them. Accuracy of the test and interpretation are very important, any negligence may lead to consequences or repercussions, both for the practitioner and the subject. Therapists also have a "Tarasoff duty" or "duty to warn," which requires them to violate client confidentiality and alert potential victims when they think a client poses a serious risk. Failing to do so this may root down to breach of ethics, which includes, inappropriate test, inaccurate interpretation, favouring the client etc. As an expert witness forensic psychologist credibility and integrity is subject to test in the court of law. All the acts should be in consistent with the Ethics Code. The aim of this study is to find a middle ground where professional obligations are fulfilled while upholding the integrity of the ethical standards.

Keywords: Forensic Psychology Dual Roles, Confidentiality, Informed Consent, Tarasoff Duty, Ethics.

SPA21

COMPARATIVE STUDY OF PSYCHOPATHIC TRAITS IN ADOLESCENTS

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Abstract

The distinguished study of the psychopathic traits which can be categorically divided into INTERPERSONAL – Grandiose – manipulative, AFFECTIVE – Callous – Unemotional and LIFESTYLE- Impulsive-Irresponsible in adolescent girls and boys participants of the age 13 – 18 a total of 66 with 33 males and 33 females living in urban part of Bengaluru using YPI – youth psychopathic trait inventory which is a 50 item self-report questionnaire framed to analyse samples of adolescents for psychopathic traits, which includes ten main traits such as dishonest charm, grandiosity, lying, manipulation, remorselessness, unemotionally, callousness, thrill seeking, impulsiveness, irresponsibility, this study aims to juxtapose the psychopathic traits in male and female adolescents whose YPI scores can help detect response pattern such as positive or negative impression management, proactive aggression random or careless responding, the correlation of the sub traits and their scoring and its parallelism to its disorders branched as DBD – Disruptive behaviour disorder, ODD – Oppositional defiant disorder, CD – Conduct disorder, with the understanding of general strain theory, arousal theory, social learning theory, moral reasoning theory, comparison of analysis between the adolescent boys and girls resulting as males score show higher psychopathic tendencies than females score and with the comparative results with the sub trait groups show that callousness is more in females than males and showing the further comparability of each of the trait in YPI and the deviances of the psychopathic behaviour or trait in adolescents with inclusion of the factors affecting or triggering these traits and their preventive strategies and societal inclusiveness, gender differential approaches, this study's inference is to act as a key factor to understand the targeted approaches to attenuate the maturation of psychopathic traits in adolescents.

Keywords: PYI, Adolescents, Disorders, Traits, Theories.

SPA22

FORENSIC SPEAKER RECOGNITION USING VOWEL ACOUSTIC AND AUDITORY FEATURESManisha Dalal¹, Dr. Mukesh Kumar Thakar², Dr. C.P. Singh³¹Department of Forensic Science, Punjabi University, Patiala²Physics Division (A/V), Forensics Science Laboratory, Rohini, Delhi**Abstract**

Forensic speaker identification plays a crucial role in modern criminal investigations and legal proceedings by leveraging the unique characteristics of human voices to determine the identity of individuals involved in recorded conversations or audio evidence. The field of forensic speaker identification encompasses various stages, including speech signal acquisition, pre-processing, feature extraction, and speaker modelling. Forensic speaker identification faces several challenges, including the presence of background noise, limited speech samples, and variations due to age, health conditions, or emotional states. Additionally, legal considerations and the need to establish the reliability and validity of speaker identification evidence pose further challenges for practitioners. Despite these challenges, forensic speaker identification continues to evolve, benefiting from advancements in signal processing, machine learning, and data analytics. In the present study speaker identification has been performed for the Hindi speaking individuals. For this study voice samples were collected from 15 male individuals. Auditory analysis was carried out and comparable clue words from the speech data were filtered out by using the Goldwave software. Computerized Speech Laboratory (CSL) 4300B, a window based software was used for spectrographic analysis of clue words. LPC (Linear Predictive Coding) algorithm was applied for the Formant feature extraction. Formant frequencies, that is, the First Formant frequencies (F1), second Formant Frequency (F2) and the third Formant Frequency (F3) were extracted to as serve key acoustic parameters. Statistical analysis of the acoustic and auditory parameters has been carried out and results of the study has been represented on the probability scale. According to the current study, Formant frequencies, majorly the first, second and third Formant frequencies represent the specific characteristics in the vocal field and vocal tract and therefore, can serve as key parameters for speaker recognition.

Keywords: Speaker Recognition, Formant Frequencies, Acoustic Parameters, Auditory Parameters, Clue Words.

SPA23

A REVIEW REPORT ON BITE MARKS AND ITS FORENSIC SIGNIFICANCE IN CRIMES PRACTICES

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Abstract

Bite marks, a unique form of forensic evidence, have long captivated the interest of investigators and forensic scientists alike. This abstract delves into the intricate world of bite mark analysis, shedding light on its significance, challenges, and evolving methodologies. Bite marks serve as a tangible imprint of interaction between human teeth and various surfaces, ranging from skin to inanimate objects. Forensic odontologists meticulously examine these marks, leveraging their distinct characteristics to identify perpetrators or establish associations between individuals and crime scenes. Despite its utility, bite mark analysis faces considerable scrutiny due to its subjective nature and susceptibility to biases. The absence of standardized protocols and the inherent variability in human dentition further complicate the process, often leading to contentious legal debates. Recent advancements in forensic technology, including three-dimensional imaging and computer-assisted analysis, offer promising avenues for enhancing the reliability and objectivity of bite mark identification. These innovations empower investigators to extract more detailed information from bite marks, potentially bolstering the accuracy of forensic conclusions. Furthermore, interdisciplinary collaborations between forensic odontologists, dentists, and other forensic experts foster a comprehensive understanding of bite mark evidence, facilitating rigorous scientific scrutiny and informed courtroom testimony. This abstract provides a glimpse into the multifaceted realm of bite mark analysis, emphasizing the need for continued research, standardization, and collaboration to harness its full potential as a forensic tool.

Keywords: Morphological Characteristics, Forensic Analysis, Challenges and Controversies.

SPA24

UTILIZING FACIAL RECOGNITION TECHNOLOGY TO COMBAT DRUG SMUGGLING

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Abstract

One of the main instruments in the battle against drug smuggling has been facial recognition technology. Its capacity to precisely identify people depending on their facial traits has been very helpful for law enforcement and border security enhancement. Using advanced algorithms, facial recognition systems can match faces against large watchlist databases, therefore offering a strong way to stop known smugglers. By means of the biometric data exchange, this technology encourages cross-border collaboration and instantaneous reactions. Furthermore, face recognition detects and flags suspicious activity and the use of false identities by following the movements of people across many entrance and exit points and merging with current surveillance systems. The study of the literature emphasises the need of face recognition in many spheres of fight against drug trafficking. While study by Jones and Smith (2018) highlights the need of global cooperation, studies by Jain et al. (2004) and Phillips et al. (2011) show the possible and better accuracy of biometric systems. Chen et al. (2021) underline the advantages of integrating face recognition with continuous surveillance systems; Wang et al. (2020) explain how travel patterns could disclose smuggling operations. Furthermore investigated by Kim et al. (2022) are developments in algorithms meant to improve matching and processing power. The many uses of facial recognition technology in the fight against drug smuggling is investigated in this work along with the development of sophisticated algorithms able to effectively match suspect photographs with large databases. Using the identification of 68 facial landmarks, a deep learning model was applied to create an advanced face recognition system adept of spotting drug traffickers. These landmarks are essential places on a face that help the model to capture special characteristics for correct identification. The approach guarantees different representation by using a large dataset including photos of people from various backgrounds. Training and validation sets were created from the dataset; the performance of the model was assessed to avoid overfitting. On an independent dataset, tests confirmed the system's accuracy in identifying known smugglers. With a marked advantage over conventional techniques, the findings show great accuracy in identifying and matching face landmarks. To sum up, the use of a face recognition system based on deep learning turns out to be successful in addressing drug smuggling. Supporting fast identification and international collaboration, the technology greatly improves border security and law enforcement activities.

Keywords: Facial Recognition, Drug Smuggling, Border Security, Biometric Data, Deep Learning.

SPA25

ANALYSIS OF FAMILIAL INHERITANCE OF HANDWRITING TRAITS

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Abstract

Handwriting is a perceptual-motor skill which depends on the coordination of perception (the eye) and motor acts (the hand) of the writer and every human has their own distinctive handwriting characteristics that is of course embedded. Also, handwriting is a crucial mode of personal expression and communication, is often misconceived as an inheritable trait. Contrary to this belief, handwriting is primarily a learned behaviour influenced by environmental, educational, and individual factors rather than genetic inheritance. This abstract explores the distinction between inherited physical traits that can influence handwriting and the actual learned skill of writing. There are various factors which can influence an individual handwriting or certain neurological and physical factors, such as fine motor skills and hand-eye coordination, may have genetic components and can impact the ease of learning to write, but these do not determine the specific characteristics of an individual's handwriting. Instead, these traits facilitate the ability to perform the physical act of writing, leaving the development of specific handwriting styles to be shaped by personal experience and practice. This research examines the handwritings of genotypic familial relatives' similarities obtained in handwriting features of parent-offspring and siblings validates heredity and environmental conditions play an important role in transmission of writing habits from one generation to next generation and within the same generation whether to understand the myth of handwriting as an inherited trait aspect.

Keywords: Handwriting, Inheritance, Writing habits, General characteristics, Similarity.

SPA26

A CASE OF DEEP DISSECTION: BRUISE VS SEPSIS

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Abstract

A hematoma, which is externally visible as a bruise, is characterized by localized bleeding and discoloration of the skin. It occurs due to bleeding from a vascular structure. Similar to other types of bleeding, the cause can be related to bleeding tendencies, anticoagulation, or vessel injury. Vascular injury may result from external abdominal trauma or surgical procedures (iatrogenic). Hematomas represent significant bleeding events within deep soft tissues, often triggered by minimal trauma. Initially, they appear as painful swelling lesions, which can be mistaken for severe infectious conditions like cellulitis or necrotizing fasciitis. Sepsis, also known as septicemia, is the body's extreme response to infection. It occurs when germs (such as bacteria, viruses, or fungi) enter the bloodstream, leading to blood poisoning. Sepsis can cause septic shock and organ failure, with a potentially fatal outcome in up to half of cases. Immediate medical attention is crucial. If left untreated, sepsis can rapidly damage tissues, impair organ function, and result in death. In a unique case encountered in the mortuary, distinguishing between hematoma and sepsis becomes challenging based on the available information.

Keywords: Hematoma, Bruise, Trauma, Sepsis, Death.

SPA27

EVALUATING METHADONE STABILITY IN URINE: TEMPERATURE AND TIME EFFECTS

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Abstract:

Precise detection of drugs in urine samples is crucial in both clinical and forensic settings. However, the way samples are handled before testing (pre-analytical phase) can significantly impact results. Our study focuses on this critical stage, specifically how temperature and storage time affect the stability of target compounds. Unlike traditional clinical scenarios with immediate testing, forensic investigations may involve longer storage periods. Therefore, proper sample collection and storage are essential to ensure accurate analysis. This research will investigate how temperature and storage duration (freezing vs. refrigeration) influence the detectability of the drug of interest. By obtaining informed consent and managing samples responsibly, we aim to establish best practices for sample integrity. In this study, methadone was examined in 960 urine samples using four different testing methods (temperatures: 40°C, 4°C, and -4°C). The present study sheds light on the intricate interplay between storage temperature, time, and methadone stability in urine samples. These findings hold significant implications for healthcare professionals, toxicologists, and laboratory analysts involved in urine drug testing. Ultimately, the present research seeks to minimize errors and misinterpretations caused by mishandling during the pre-analytical phase, leading to more reliable drug testing outcomes.

Keywords: Drug Abuse, Methadone, Stability, Pre-Analytical Phase, Drug Testing, Methadone Maintenance Therapy (MMT).

SPA28

DIGITAL FOOTPRINTS IN INDIA: LEGAL CHALLENGES AND SOLUTIONS

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Abstract

Digital footprints in India have become a significant concern due to the rapid growth of digital technology, leading to an exponential increase in online activities. The Information Technology Act, 2000 (IT Act, 2000) is the primary legislation governing digital footprints in India, but its provisions are often inadequate to address the complexities of online privacy and security. A review of existing literature reveals a lack of comprehensive research on digital footprints in India, highlighting the need for an in-depth analysis. This study aims to bridge this gap by examining the legal challenges associated with digital footprints in India, including privacy concerns, data protection, cybersecurity threats, and jurisdictional issues. Data collection involved a qualitative analysis of relevant case laws, legislative documents, and expert opinions. A doctrinal research methodology was adopted, involving a critical examination of the IT Act, 2000 and its provisions related to digital footprints. The results obtained highlight the inadequacies of the existing legal framework in addressing digital footprint-related challenges. The study concludes that there is a need for a robust legal framework to protect digital footprints in India, and recommends proposed amendments to the IT Act, 2000, strengthening data protection laws, enhancing cybersecurity measures, and international cooperation. The findings of this study have significant implications for policymakers, stakeholders, and individuals concerned with online privacy and security in India.

Keywords: Digital Footprints, IT Act 2000, Privacy, Data Protection, Cybersecurity, Jurisdiction in India.

SPA29

INFLUENCE OF MAHAZAAR WITNESS ON ADMISSIBILITY OF EVIDENCE IN MURDER CASES OF BANGALORE CITY (CASES DISPOSED BETWEEN 2018 AND 2020)

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Abstract

The evidence collected from the scene of crime, during crime scene investigation, is in a way certified by a person of high repute called as the “Mahazaar”. When such evidence is presented before the court by the prosecution, in cases of murder, the Mahazaar is summoned to court to testify on the authenticity of the evidence collected by the investigating officer. In the one hundred murder cases of Bangalore city analysed it is found out that the role of the Mahazaar is very significant in ensuring that the evidence can be accepted and admitted by the court. Generally if the Mahazaar doesn’t support the evidence in any manner the evidence will not be considered further even if it is a conclusive evidence. The study clearly shows that majority of the cases have resulted in acquittal because the Mahazaar has not supported the evidence, which further is not considered for the case. Even though conclusive evidence related to DNA were found in many cases, further ratification of the evidence was not done because the Mahazaar had not supported the evidence presented by the prosecution. The reason for this could be many, but one reason that stands out is the lack of awareness of the evidence by the Mahazaar.

Keywords: Admissibility, Acquittal, Murder, Evidence, Evidentiary Value, Mahazaar.

SPA30

COMMON ADULTERANTS PRESENT IN ILLICIT HEROIN SEIZED IN NORTHERN INDIA AND ITS FORENSIC RELEVANCE

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Abstract

Diacetylmorphine (DAM), is a semi-synthetic opioid that is frequently abused, particularly in Northern Region states like Punjab, Himachal Pradesh, New Delhi, Delhi-National Capital Region (NCR), Haryana, and Rajasthan. It is popularly known by slang name “Chitta” in Indian streets. Tracking the precise source or trafficking networks is still daunting for law enforcement agencies. Here, forensic intelligence is essential for executing strategic and tactical actions. It is a well-established fact that DAM is illicitly synthesized in a clandestine laboratory. Various inherent or deliberately added adulterants/contaminants were reported by various authors in their research studies. The motive behind adding the adulterants (diluent/cutting agents) to a pure drug sample is monetary benefits by increasing its quantity. Such impurities drastically impact the abuser’s health, even death, due to overdose and synergistic impacts of chemical substances added to heroin. Each lot of confiscated consignments of Chitta has a unique chemical signature. Forensic chemical profiling concerning special impurities, contaminants, and adulterants can provide essential information about drug trafficking networks. The presence of these chemical substances varies at each step within the trafficking network. The universally accepted fact is that each offender has a peculiar modus operandi. This peculiar pattern of adding adulterants to illicit drug samples can aid in tracing the trafficking route and further dismantling its source. This oral presentation tries to identify the common adulterants of illicit heroin in different regions. For this purpose, the authors utilize their personal forensic laboratory experience and scientific research studies conducted by other experts. Also, the significance of such adulterants in narrowing down the possible suspects and further dismantling the source and the network is explained. Furthermore, the loopholes existing in ongoing geographical profiling-based research studies are also highlighted. The author’s recommendations and implications need to be implemented for dismantling the illegitimate network, and in the future geographical profiling-based research studies to build a comprehensive view are also represented.

Keywords: Diacetylmorphine, Chitta, Northern Region, Chemical Substances.

SPA31

DEVELOPMENT OF NOVEL POTENTIOMETRIC-BASED PROTOTYPE FOR THE DETECTION OF CODEINE PHOSPHATE PRESENT IN THE COMMERCIAL SAMPLES FOR FORENSIC APPLICATION

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Abstract

Illicit drug abuse poses a significant challenge to public health and safety. Recently, the effective detection methods are the hallmarks for preventing drugs of abuse and ensuring justice. In this work, we developed a novel potentiometric-based prototype to detect the codeine phosphate present in the commercial samples using bromophenol dye and copper electrode. Commercially, Codeine phosphate is a widely used opioid for pain relief and cough suppression in the form of syrup or tablets. However, its abuse has led to severe health and social consequences. Currently available detection techniques are such as chromatography, electrochemical are often time-consuming, expensive, and require specialized equipment. A simple, rapid, and cost-effective, strip-based detection method is urgently required. For the lower level detection, the quantitative analysis of codeine phosphate is also determined by UV spectroscopy. The electrode strip was developed with the Whatman's filter paper coated with bromophenol dye along with the copper strip in the both side of the teflon divider. The electrode contacts with the indicator and placed on the test solution. Due to the capillary action, the analyte solution raised and touches the electrode due to colour change and instant formation of adduct, the variation of the potential was observed. This voltammetry analysis of the strip reveals a direct correlation between voltage increase and codeine phosphate concentration. Furthermore, the intercalation of graphene oxide with bromophenol dye enables sensing of codeine phosphate was executed. Device fabrication using 2D materials is expected to achieve a limit of detection (LOD) from mM to μM or nM. This method shows the simplicity, sensitivity, and specificity and makes it as a convenient solution to detect codeine phosphate in various commercial samples for forensic applications.

Keywords: Illicit Drug, Codeine Phosphate, Bromophenol Dye, UV Spectrometry, Voltammetry.

SPA32

RUTHENIUM–BASED MOLECULAR ELECTROCATALYSTS DERIVED FROM PYRIDINE SUBSTITUTED 1, 2, 4–TRIAZOL–5–YLIDENES FOR THE ULTRA TRACE–LEVEL DETECTION OF DATE RAPE DRUGSNupoor Gopal Neole¹

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Abstract

The paper explores the creation of a sensor designed to identify predatory drugs, such as ketamine, scopolamine and gamma–butyrolactone, using ruthenium (II) NHC complex. Detecting these substances is vital in understanding drug–facilitated sexual assaults, where they are often administered with alcoholic beverages. Current methods for detecting these drugs and their metabolites are time–consuming and require enhanced sensing applications. Ruthenium(II) NHC complex has shown great potential in electrochemical applications and has been utilized to develop a sensor with superior sensitivity (269.41, 33.38 and 61.97 $\mu\text{A } \mu\text{M}^{-1} \text{cm}^{-2}$) and selectivity for detecting these drugs, with a limit of detection of 0.14, 1.44, and 2.22 nM for ketamine, scopolamine and gamma–butyrolactone, respectively. The sensor has the potential to provide valuable tools for forensic investigations and addresses the urgent need for real–time detection of date rape drugs. The article emphasizes the importance of developing non–enzymatic, environmentally friendly and cost–effective sensors for on–site applications.

Keywords: Date Rape Drug, Ruthenium (II) NHC Complex, Ketamine, Scopolamine, Gamma–Butyrolactone.

SPA33

**MICROSCOPIC STUDY OF SURFACE MORPHOLOGY AND
FILTERING EFFICIENCY OF COMMONLY AVAILABLE FACE MASKS
USED BY THE POPULATION OF BILASPUR, CHHATTISGARH, INDIA**Sanjida Shabnam¹¹Research Scholar, Guru Ghasidas Vishwavidyalaya**Abstract**

In impoverished nations, inexpensive face masks made of various fabric materials are particularly popular. Typically, the cloth masks (CM) & surgical mask (SM) include two layers whereas N95 mask includes minimum four layers with stretchy ear loops. The effectiveness of a mask's air born particles filtration depends on a number of factors, including pore size, shape, numbers etc. Understanding how these characteristics affect filtering effectiveness is crucial. In this study using light microscope and scanning electron microscope, the surface of distinct kinds of CMs, SMs & N95 were classified. The particle filling was used to assess the filtering effectiveness of several fabric face masks. From this observational study the efficiency of SM for ambient air born particle was found to be poorer than in CM. The poor efficiency was because after usage the inner layer got more damaged than outer layer. Compared to N95, CM has a lower filtering effectiveness for airborne particles, large pores were the cause of the poor performance. The finding of this study suggests that SM & CM are not effective as compare to N95. The finding of this study will be helpful for increasing public awareness among population of developing countries where such masks are commonly used for daily routine, & also for policy maker to make & implement guidance regarding commonly used face mask for public use.

Keywords: Cloth Masks, Surgical Mask, N95, Microscopic.

SPA34

FORENSIC CHALLENGES IN SPERM ANALYSIS WITH CONCURRENT CONTRACEPTIVE USE: A COMPREHENSIVE REVIEWRiya Ghosh¹¹UG IV SEM student, Dept. of Forensic Science, Kristu Jayanti College**Abstract**

Forensic sperm analysis is pivotal in sexual assault investigations, aiding in perpetrator identification and legal proceedings. However, concurrent contraceptive use presents significant challenges in sperm detection, recovery, and analysis. This review explores the impact of various contraceptive methods—hormonal contraceptives, intrauterine devices (IUDs), and barrier methods—on forensic outcomes. Hormonal contraceptives can alter the vaginal environment, reducing sperm viability and concentration. IUDs can cause physical displacement or degradation of spermatozoa, and barrier methods, like condoms, may leave minimal or no trace of sperm, complicating forensic analysis. The situation becomes more complex when the female victim has Polycystic Ovary Syndrome (PCOS) or Polycystic Ovary Disease (PCOD). These conditions involve hormonal imbalances and irregular menstrual cycles, further affecting the vaginal milieu and the presence of endogenous cells critical for forensic interpretation. Additionally, PCOS/PCOD often results in increased vaginal secretions and varied pH levels, which can compromise sperm integrity, making traditional analysis methods less effective. Advanced forensic techniques, including DNA profiling and sperm cell isolation methods, are evaluated for their effectiveness in overcoming these challenges. The review highlights recent advancements in forensic technology, such as laser capture microdissection (LCM) and improved DNA extraction methods, which have enhanced the ability to analyse compromised sperm samples. Additionally, the implications of these forensic challenges in legal contexts are examined, emphasizing the importance of accurate and reliable sperm analysis in criminal investigations and legal proceedings. The review underscores the need for forensic scientists to remain cognizant of the potential impacts of contraceptive use on sperm analysis and to continuously update their methodologies to account for these variables. Future research directions are suggested, including the development of more robust analytical techniques and standardized protocols to mitigate the effects of contraceptives on sperm analysis. Ultimately, this comprehensive review aims to provide a thorough understanding of the forensic challenges in sperm analysis with concurrent contraceptive use and to propose solutions for enhancing the accuracy and reliability of forensic investigations.

Keywords: Forensic Science, Sperm Analysis, Sexual Assaults, PCOD, IUDS, Hormones, Contraceptives, Investigation, PCOS.

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Conflict In Rights Of Fetus
- ❖ **SPO-02 | Dr. Wiwin Ida Nur Sri Wahyuni**
Autopsy Findings In Colorectal Cancer With Liver Metastasis: A Case Report
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Autopsy Findings Death Due To Drowning: A Case Report
- ❖ **SPO-04 | Dr Setya Aji Priyatna**
Examination Methanol Levels In Case Of Intoxication Methanol: A Case Report
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Forensic Facial Reconstruction
- ❖ **SPO-33 | S Darshan**
Enhancing Latent Fingerprint Identification Through AI-Driven Analysis: Innovations and Applications in Forensic Science

SPO01

CONFLICT IN RIGHTS OF FETUS

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Abstract

Introduction - In India, the rights of an unborn child are a complex and evolving legal and ethical issue. The recognition of these rights has gained increasing attention in recent years due to advancements in medical technology, changing societal norms, and legal considerations. Recent amendments in MTP Act has enhanced gestational limit to 24 weeks for special categories of women. **Case** - We present a case series of 7 cases of pregnancy above 20 weeks of gestation as a result of sexual assaults were referred to our institute regarding opinion of termination during the lockdown. The honourable courts allowed termination of pregnancy in five cases taking a liberal approach and termination was denied in two cases due to risk of complications. **Discussion** - The right to life and personal liberty has been given to every person but the concept of a personhood complicates the position of legal status of fetus. Pro-life groups emphasize the sanctity of the right to life and argue against easy violations based solely on the choice to abort. In contrast, pro-choice advocates contend that a fully autonomous individual should not have her body committed to nine months of pregnancy without her consent. **Conclusion** - The provisions given in MTP act are very accurate. After recent amendments, MTP Act has been further strengthened in favour of women, which is a better approach. Undoubtedly rights of foetus which is a potential person must be respected and protected but at the same time right of a mature adult should not be ignored.

Keywords - Unborn Child, MTP Act, Fetus, Sexual Assault.

SPO02

AUTOPSY FINDINGS IN COLORECTAL CANCER WITH LIVER METASTASIS: A CASE REPORTWiwin Ida Nur Sri Wahyuni¹¹Department of Forensic Medicine and Medicolegal, Faculty of Medicine,
Airlangga University, Surabaya, Indonesia**Abstract**

Introduction: Colorectal cancer is an abnormal growth of epithelial cells in the colon, rectum, or both. Colorectal cancer is the third most common cancer worldwide, accounting for approximately 10% of all cancer cases, and is the second leading cause of cancer-related deaths worldwide. In 2022, it is estimated that more than 1.9 million cases of colorectal cancer and more than 930,000 deaths due to colorectal cancer occurred. In Indonesia, the incidence of colorectal cancer in 2022 reached 34,189 (8.6%) cases. The liver is the most common site of colorectal cancer metastasis because the intestinal mesenteric drainage enters the hepatic portal vein system. Approximately 50% of patients develop liver metastasis in the course of the disease resulting in death in more than two-thirds of these patients. Colorectal liver metastases have the same histological features as the primary tumor most are adenocarcinomas. **Case presentation:** Investigators dispatched a 45-year-old man to the hospital in Surabaya after receiving a report from the neighbor. He was found dead in his house. On external examination was found the blood vessels on the mucous membrane of the upper and lower eyelids appears widened, fingertips and nails of the four limbs appear bluish. Both are show features from asphyxia syndrome. **Discussion:** On internal examination was found an enlarged liver with uneven shape, a humped impression, obtuse angles, hard solid consistency, and fatty liver. Dilated blood vessels were found on the surface of the large intestine. On organs section, a mass was found in the large intestine with a hard, dense, and lumpy consistency. On the results of the anatomical pathology examination, was found extensive bleeding in the colon and adenocarcinoma metastasis in the liver. **Conclusions:** The cause of death was due to malignancy in the colon which spread to the liver resulting in suffocation.

Keyword: Pathology Forensic, Autopsy, Colorectal Cancer, Liver Metastasis, Asphyxia.

SPO03

AUTOPSY FINDINGS DEATH DUE TO DROWNING: A CASE REPORT

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Abstract

Introduction: Drowning is a significant public health problem worldwide and the WHO reported that drowning is the world's third leading unintentional injury death. Nevertheless, there is still uncertainty regarding the estimate of local and global drowning deaths. In addition, the postmortem diagnosis of drowning is challenging and the physiological mechanisms of death by drowning are complex and not very well understood. Drowning is a condition of suffocation due to asphyxia due to the entry of fluids into the respiratory tract. The process of drowning begins with respiratory distress either because a person's airway is below the surface of the liquid (submersion) or because the water only covers the face (immersion). **Case presentation:** Investigators dispatched a 25-year-old man to the hospital in Surabaya allegedly dead due to drowning. The corpse was found on the banks of the Wonokromo River, Surabaya, by local residents, the body was identified at Dr. Soetomo General Hospital by a forensic expert. External, internal, and laboratory investigations were conducted. **Discussion:** A complete autopsy is vital to determine the cause and mechanism of death. On external examination was found a washer woman's hands, pink teeth, froth of the nose, and blueness on the fingertips of the extremities. On internal examination was found blood infiltration in the middle ear, fine foam was found in the main respiratory tract, haemolytic staining in the heart, reddish-white fine foam on the organ section of both lungs and diatoms in the collapse proof test, and acid destruction of the femur preparations were positive. **Conclusions:** The cause of death was due to drowning is asphyxia which prevents air entry into the lungs by inhaling fluid into the airways, i.e., nose and mouth.

Keywords: Pathology Forensic, Autopsy, Drowning, Cause of Death, Asphyxia.

SPO04

Examination Methanol Levels In Case Of Intoxication Methanol: A Case Report

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Abstract

Introduction: Methanol is an industrial alcohol that is usually available in concentrations high for industrial purposes. The toxicity of methanol is relatively higher, when compared with ethanol. Methanol has the molecular formula CH₃OH, methanol is in liquid form colorless clear, non-ionic, has a characteristic odor, dissolves in water and Organic solvent, methanol also dissolves easily in cold water and hot water. Acute phase of methanol intoxication consist fatigue, nausea, vomiting and temporary blurred vision. The moderate state with headache, dizziness, depression central nervous system and permanent blurred vision. Severe intoxication more progress if by decrease of respiration and pulse rate, comateus and death. **Case presentation:** A 38 year old man experienced decreased consciousness after drinking alcohol. Previously, the victim also experienced sudden blindness, vomiting and dizziness. The victim received intensive care and hemodialysis at Soetomo Hospital. The victim died after 4 days of treatment. On external examination, signs of asphyxia and a characteristic odor of alcohol were found. **Discussion:** On internal examination, a characteristic odor of alcohol was found when the stomach was opened, dilation of blood vessels in the cerebrum, cerebellum, brain stem, and blockage of capillary blood vessels in the cerebrum, cerebellum, brain stem, lungs, heart, spleen and right kidney. Fatty tissue on some surfaces of the heart, hardening of the pancreas and liver. On toxicology examination, positive results were obtained for ethanol and methanol in the blood, and it was found positive for ethanol at a level of 0.046%, and 0.012% methanol in gastric fluid. **Conclusions:** The maximum level of methanol that can be tolerated in the human body is 0.1% in the blood. The victim was found to have a methanol level of 0.012%. This can be influenced by hemodialysis and the metabolic capacity of the victim's body.

Keywords: Pathology Forensic, Autopsy, Methanol Intoxication, Forensic Laboratory, Asphyxia.

SPO05

**CHOP WOUND DUE TO VIOLENT TRAUMATIC AMPUTATION
BETWEEN ELBOW AND WRIST: A CASE REPORT**Fadhly Azis¹

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Abstract

Introduction: Quite a lot of sharp violent crimes occur in Indonesia. In proving this crime, the police often ask for help from doctors regarding the injuries suffered by the victim. Doctors can predict the cause of injury, qualification of injury, and degree of injury using their knowledge. A cut wound is an injury caused by a sharp object or heavy object with a sharp or slightly blunt tip that occurs as a result of a swing accompanied by force. The characteristics of a stab wound are: the size, edge of the wound, and angle depending on the edge of the weapon used. Usually causes damage to the bones. **Case presentation:** A 12-year-old child suffered from violence committed by an unknown person. She was riding a motorbike alone at 2.00 AM on a quiet road, suddenly two unknown people slash the hand using a machete and pulled until it was cut off and then ran away, the victim was found by residents and brought to the hospital. We found a chop wound traumatic amputation between the elbow and wrist. Normal vital sign with GCS 456, x-ray: *vulnus amputatum distal antebrachii dextra*. **Discussion:** The objective of a forensic examination on injury cases is to know the type of wound, type of injury, and degree of injury. This is meant to fulfill the formulation offense in Indonesian's Penal Code (KUHP). According to criminal law, degree qualifications wounds can be divided into the criminal code which are classified as wounds light injuries (KUHP article 352), moderate injuries (penal code article 351), and serious injuries (KUHP article 90). **Conclusions:** In this case, the victim sustained chop wounds which caused traumatic amputatum in the right hand. The conclusion of *Vice et reperta*, the degree of injury is serious physical injury (Criminal code article 90).

Keywords: Clinical Forensic, Chop Wound, Degree of Injury, Indonesian Penal Code, Crime.

SPO06

AUTOPSY FINDING OF LIVER INJURY IN ABDOMINAL TRAUMA: CASE REPORT

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Abstract

Introduction: Liver injury is the most common cause of abdominal trauma resulting in death. The location in the anterior of the abdominal cavity and fixed under the diaphragm, as its fragile parenchyma makes the liver susceptible to blunt and penetrating injury. **Case presentation:** A 28-year-old woman experienced physical abuse from her partner after drinking alcohol in a pub. She was beaten in her head and got run over in the parking area. On external examination, we found lacerations and bruises on the head, neck, left ear, thorax, abdomen, both right and left of the upper limb, and left leg. Autopsy findings showed lacerations in the liver with the total of bleeding was 1200 mL. **Conclusions:** The cause of death of the victim was a blunt force to the abdomen which resulted from liver injury. This case report also highlights the characteristics of the vascular system inside the liver which has thin-walled vessels with high blood flow so it can be fatal and the main cause of hemorrhagic shock.

Keywords: Homicide, Forensic, Autopsy, Liver, Blunt, Hemorrhagic.

SPO07

THE DARK SIDE OF AI: USE OF AI IN CYBERCRIMES

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Abstract

AI has become an integral part of everyone's life. We use AI for asking questions, studying, business, law, marketing, finance and even health care. Today AI is utilized for jobs previously that only humans could do. From detecting criminals in crowds to solving crime cases, AI is growing in the police and law fields. Even though AI is a great step towards an advanced future, it becomes a curse when it falls into bad hands. This paper aims to investigate the use and abuse of AI to commit cybercrimes. It also assesses whether the Indian legal system is equipped to handle cybercrimes using AI. Protecting oneself from cybercrimes using AI will be discussed along with implications.

Keywords: Cybercrimes, Artificial Intelligence (AI), AI Crimes, Indian Legal System, Cyber Violence and Abuse.

SPO08

FENTANYL: A RISING THREAT IN THE MODERN OPIOID CRISISBendi Mahita¹, Himanshu^{1,2}, Astha Pandey¹⁻²¹School of Forensic Science, National Forensic Sciences University, Gujarat, India¹⁻²Centre of Excellence for Research & Analysis of Narcotic Drugs and Psychotropic Substances,
National Forensic Sciences University, Gujarat, India**Abstract**

Introduction: Fentanyl is a synthetic opioid that exerts potent antagonistic effects on μ -opioid receptors located in both the peripheral and central nervous systems. Fentanyl was originally synthesized for medical use to treat chronic pain. Fentanyl is structurally similar to pethidine, a well-known painkiller. Over the past two decades, there has been a dramatic increase in fentanyl overdose cases, particularly in developed Western countries, which has contributed significantly to increases in morbidity and mortality rates. Fentanyl rapid onset of action, high potency at low doses, and widespread availability have facilitated its illicit use, either alone or with other drugs. The ongoing illegal exploitation of fentanyl is a major problem in both developing and developed countries. It is critical to investigate the trafficking, production and supply chains of fentanyl and its precursors. Another major challenge is detecting fentanyl through an autopsy due to its rapid degradation and ability to mimic natural causes of death. These factors complicate efforts to accurately identify and address fentanyl-related deaths. Understanding the socioeconomic factors that influence fentanyl abuse is critical to developing effective prevention and intervention strategies. This complexity of fentanyl public health impacts highlights the need for comprehensive strategies that involve surveillance, regulation, and public awareness. Conclusion: This research underscores the need for enhanced detection methods and effective public health strategies to combat the increasing threat of fentanyl. By addressing the challenges and socioeconomic factors affecting fentanyl abuse, we can create more effective strategies to reduce its adverse effects and promote public health awareness.

Keywords: Fentanyl, Synthetic Opioids, Drug Overdose, Opioid Crisis, Illicit Drug Abuse.

SPO09

EXTRACTION AND IDENTIFICATION METHODS OF DIATOMS IN DROWNING CASES – A REVIEW

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Abstract

Diatoms, unicellular, eukaryotic organisms, can be found in both marine and fresh water environments, belonging to Phylum Bacillariophyta, under the Kingdom Protista. Their siliceous cell wall forms a box-like structure, frustule, which is the main component assisting in the identification of diatoms from different media; be it the intricate patterns on the frustules or its chemical composition. Forensic limnology deals mainly with diatoms which help to determine the geographical location of a crime scene and their relevance are significant in forensics, mainly in drowning cases. Hence, different procedures of diatoms extraction and identification become necessary. The conventional methods of diatom extraction include acid digestion method, membrane filtration method, centrifugation method and many more. Some new advancements for diatom extraction, developed in the recent have been proven to be less hazardous, less time consuming and more accurate than the conventional methods; which includes Soluene-350, Reverse Aqua-regia, papain digestion, etc. New techniques of diatom extraction have also been studied in India as well, for example the Reverse Aqua-regia method conducted in Himachal Pradesh. Diatom identification can be based upon the taxonomical traits, metagenomic data, morphological features and even DNA-barcoding of the frustules. This review paper focuses on the latest and sophisticated extraction and identification techniques adapted for diatom studies in the field of forensic science.

Keywords: Diatoms, Forensic Limnology, Drowning, Extraction, Identification.

SPO10**DEVELOPMENT OF LATENT FINGERPRINTS ON NON POROUS SURFACES USING ORGANIC NANO- POWDERS - A REVIEW PAPER**Aratrika Roy¹, Kiruthiga U²¹Bsc. Student, School of Forensic Sciences, National Forensic Sciences University, Tripura, India²Lecturer, National Forensic Sciences University Tripura, India**Abstract**

Dactylography is the scientific study of fingerprints and their use in identification. It encompasses the methods and techniques used to capture, analyze, and compare fingerprints, as well as the legal and ethical considerations surrounding their use in criminal investigations and other contexts. It is a specialized field within forensic science that draws on principles from biology, chemistry, physics, and mathematics to identify and analyze fingerprints. While the conventional powders have been existing for years, many unconventional Powders has been developed and modified to solve the shortcomings of traditional powders. One such unconventional method is fluorescent organic nanopowders, which can be modified according to the needs, less toxic in nature, and used to develop the latent fingerprints without damaging the latent fingerprints residues. Fluorescence is observed when the emitted wavelength is longer than the absorbed wavelength after the light reacts with matter and loses energy. Chemical fingerprint development reagents utilize fluorescence in order to visualize low-contrast latent prints. The print is treated with a fluorescent dye stain in order to make the print “glow” against the background and increase its contrast and visibility. Materials only fluoresce, or glow, when energy is constantly applied to the surface. This review article provides a detailed understanding on the fluorescence materials and its efficiency in developing and enhancing the fingerprints and encompasses on the various biological components which has an inherent fluorescent molecular effects and capacity to develop the latent fingerprints.

Keywords: Latent Fingerprints, Dactylography, Fluorescence, Fluorescent Nano-Powder.

SPO11**CORNEAL LACERATION INJURY THAT LED TO RISK OF
PERMANENT DECREASE VISUAL ACUITY**Wira Santoso Ongko¹¹Department of Forensic Medicine and Medicolegal Airlangga University,
Dr. Soetomo Hospital Surabaya, Indonesia**Abstract**

A man 21 years old, using eyeglasses had been attacked by his drunk friend on a 2024 New Year eve party. Suddenly after attack felt pain on his left eye and decrease visual acuity. The chronology began while he went to his relative's house to celebrate the party. Then his drunk friend come and making dispute around the neighborhood. The victim trying to arbitrate the condition. Then the perpetrator agitating and punch him. The punch made the eyeglasses broken into pieces and injured his eye. The assessment of eye injury using Birmingham Eye Trauma Terminology (BETT) Classification that result as a corneal laceration injury caused by a sharp object. And the assessment of visual acuity using reference from American Academy of Ophthalmology (AAO). Clinical examination performed by doctor to the victim, include the general examination and especially the eye and visual examination. After that, inspection held to the eye, compare the physical appearance of normal right eye and injured left eye. Impact of eye injury can be varied depends on the force that affect it, ranging from peripheral area of orbital region to the internal part of eye that can be more fatal. This injury caused by penetrating of sharp object into the eye. Some of the object might get stuck in the eye and need a surgery to remove them. It can cause bleeding and damage to the structures of the eye. Even the wound in the eye seems to be mild and not bleed massively, the consequence is very significant. The victim can suffer the risk of permanent decrease visual acuity. Forensic medicine practitioner needs help from ophthalmologist to determine the severity of the wound that will be written on Visum et Repertum. Proper assessment of wound classification could be very informative for law enforcer to determine the punishment.

Keywords: Eye Injury, Visual Acuity, Wound Classification, Clinical Forensic, Visum et Repertum.

SPO12

INVESTIGATING THE IMPACT OF VARIOUS FABRICS ON ACOUSTIC VOICE PARAMETERS: A FORENSIC STUDY

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Abstract

Whenever an individual or group tries to commit a crime, it is common for them to try to conceal their identity. One method criminal often uses to disguise their voice are by placing cloth pieces in front of the recording device. This presents a challenge for forensic voice analysts, who must compare normal voice samples with those recorded through cloth to authenticate the source of evidence for justice. In the present study, ten subjects (five male and five female) provided voice samples both under normal conditions and with three layers of different cloth types (cotton, velvet and silk) recorded on an android (Samsung Galaxy A32) voice recorder at 48 kHz. Acoustic parameters (voice pitch, jitter, shimmer, intensity and harmonic mean correlation) and statistical analyses were conducted. The result showed that while the cloth pieces did not significantly affect on understanding the words, recordings with velvet cloth exhibit greater variations in acoustic parameters compared to cotton and silk. Notably, only jitter parameters showed statistical differences across all the parameters selected.

Keywords: Forensic, Voice, Fabrics, Acoustic, Recordings.

SPO13

COMPARISON OF DATA RECOVERY FROM ANDROID MOBILE PHONES USING XRY AND OXYGEN FORENSICSAman Sharma¹, Bhuvnesh Yadav², Arun Singh³, Bhavya Sharma⁴

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Abstract

Mobile phones are the most common form of evidence encountered in today's world. Their widespread availability and the extensive data they collect on individual's movement make them crucial in forensic investigations. Analyzing and examining mobile phones involves data extraction using both open-sourced and commercial software, such as MOBILedit, MSAB XRY, Oxygen Forensics and UFED. However, open-sourced software often lacks the capability to provide comprehensive data and is generally less reliable. In contrast, commercial software can extract data and generate reports that are acceptable and validated in a court of law. Each mobile phone has its specifications, making it challenging for the examiner to determine which software can extract the maximal data from chipsets. Therefore, it is necessary to validate the reliability of various software tools across different versions of mobile phones. This validation not only aids forensic examiners in fastening the analysis process by selecting the appropriate software for a given phone but also ensures the reproducibility and validity of digital evidence. In the present study, five Android-based mobile phones with different chipsets were selected, and data was extracted using MSAB XRY and Oxygen Forensics. The extracted data was then compared and statistically analyzed. The extraction was successful for each device; however, the number of files extracted for each device differed between the two software programs. Statistically, no difference was found in the overall data extraction capabilities of the two software.

Keywords: Mobile Extraction, XRY, Oxygen, Android, Forensic.

SPO14**PERSISTENCE OF INORGANIC GUNSHOT RESIDUE (IGSR) ON COTTON CLOTH TARGETS WITH RESPECT TO DIFFERENT WASHING TECHNIQUES**Uttam Singh¹, Dr. Rajvinder Singh², Dr. Sanjeev Kumar³¹Research Scholar, Department of Forensic Science, Maharshi Dayanand University, Rohtak, Haryana, India²Associate Professor & Research Supervisor, Department of Forensic Science, Maharshi Dayanand University, Rohtak, Haryana, India³Assistant Director (Physics & Ballistics) and Research Co-Supervisor, Regional Forensic Science Laboratory, Mandi, H.P., India**Abstract**

Gunshot residue is a crucial trace evidence in forensic science formed as a result of the explosion of the gunpowder within the firearm when the firearm is operated. Whenever a firearm is operated, huge volume of gaseous particles escape from the openings of the firearm. Such particles are known as cartridge discharge residue (CDR) and firearms discharge residue (FDR) as well. Partially burnt and unburnt propellant, incandescent gases, sooty material of amorphous nature, residues from the primer, bullet and the cartridge case are the basic constituents of these gaseous particles. GSR may be used to get an idea of the range of fire, to recognize bullet holes and to possibly identify the shooter, firearm type, the type of ammunition used and the approximate time of fire. GSR may be either Inorganic GSR (IGSR) or Organic GSR (OGSR). Inorganic and organic residues are the most basic components in firearm discharge. According to several experts, the majority of organic components come from propellant and lubricant materials, whereas inorganic components come from cartridge case, primer, jacket core, and firearm barrel. The present study was done to evaluate the effect of different washing techniques i.e. washing with plain water, soap aided washing and surf aided washing on the persistence of IGSR. Target IGSR elements included lead (Pb), barium (Ba) and antimony (Sb). Cotton cloth specimens were test fired using an Indian Ordnance Factories (IOF) .32 revolver from a range of 2 inches. The cloth specimens containing IGSR were then subjected to washing using plain water, soap, and surf. One of the specimens was analysed without any treatment. The extraction of IGSR was performed using 10% nitric acid. The extracts were analysed with the help of Inductively Coupled Plasma Mass Spectrometry (ICP-MS) to detect the target elements at ppb levels. Results indicated that washing techniques had a substantial effect on the persistence of IGSR. It was observed that plain water washing caused almost 70% degradation in the quantity of IGSR as compared to the IGSR recorded on the untreated specimen while soap aided washing caused almost 80% degradation in the quantity of IGSR and surf aided washing was the most effective one causing almost 90% degradation in the quantity of IGSR.

Keywords: Inorganic Gunshot Residue, Washing Techniques, Cotton Cloth.

SPO15

MICROBIOTA: THE NEXT FRONTIER IN BIOMETRIC IDENTIFICATION - A REVIEW PAPER

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Abstract

Various types of microorganisms dwell in the human body, collectively called the microbiota, which vary depending on the anatomical location, such as the stomach, skin, mouth cavity, respiratory tract, and urogenital tract. This review article studies in detail about microbiota and their potential as a physiological biometric identifier. Recent developments in data analytics and metagenomic sequencing allow for in-depth examination of individual microbiomes, offering insights on distinct microbial profiles. Microbiota-based identification systems: applications and challenges (for example, sample reliability, protocol standardisation, privacy concerns) are reviewed. Despite these difficulties, using microbiota for recognizing people has potential applications in forensics, security, and custom medical care, indicating the beginning of a new chapter in the field of biometric technology.

Keywords: Forensic Identification, Microbiota, Biometric Identification, Forensic Profiling, Microbiota Profiling.

SPO16**A STUDY ON TRADITIONAL METHODS FOLLOWED FOR
COMMITTING INFANTICIDES AND NEONATICIDES DURING OLDEN
DAYS IN THE DISTRICTS OF TUMKUR AND CHIKKABALLAPURA,
KARNATAKA**Niharika D N¹¹Garden City University, Bangalore**Abstract**

Neonaticide and Infanticide are one of the heinous crimes in the entire world yet highly neglected, as these crimes are masked under certain medical conditions such as “still births”. Hence it is very important to know the difference between actual still births and the crimes which are masked as still births. Though these crimes are executed very cleverly using modern techniques in today’s generation, there is a chance that offenders can use certain traditional methods for executing these crimes which are unknown for most of the people. Where this can be the advantage for the offenders to easily escape from the crime. Therefore it is very important to know about the traditional old methods used for committing infanticides and neonaticides to eradicate these crimes from its roots. Hence to identify types of traditional methods performed in olden days and to know whether people in villages are aware of these traditional methods a interview based experiment was conducted where two districts of karnataka, in which 8 villages from each districts were taken into consideration and they were interviewed based on the knowledge they had on these traditional methods of infanticide and neonaticide. The result of this experiment showed that out of 200 samples from each district 73 (36.5%) sample from one district and 65 (31.5%) from other district were aware of this traditional methods which were used for committing Infanticide and Neonaticide.

Keywords: Infanticide, Neonaticide, Still Births, Traditional Methods.

SPO17

A COMPARATIVE STUDY OF OCCUPATIONAL STRESS AND PTSD AMONG CRIME INVESTIGATORS AND NON-INVESTIGATIVE PROFESSIONALS

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Abstract

Background: The crime investigative field encompasses a diverse range of professions, from law enforcement officers to forensic scientists, and psychologists. Unlike many other occupations, these professionals routinely navigate the aftermath of violent incidents, confronting graphic details and engaging with individuals deeply affected by trauma. However, this exposure comes at a cost, with heightened risks of experiencing post-traumatic stress disorder (PTSD) and its debilitating effects. **Aim:** By examining the mental well-being of these individuals, we seek to shed light on the often overlooked consequences within the workforce, underscoring the critical importance of maintaining a healthy psyche in facilitating clear thinking, sound judgment, and effective decision-making, which are the essential elements in aiding to the administration of justice. **Materials and Methods:** This study included a sample of 200 participants, who were divided into two groups Group A (Investigative group) and Group B (Non-investigative group). Both the group were given questionnaires (Operational Stress and PTSD checklist) using the online Google forms. The data was then organized for Statistical analysis. Data analysis was done using Descriptive analysis, Independent t-test, and Pearson correlation coefficient. **Results:** The findings of the study showed that prevalence of occupational stress and PTSD is higher among crime investigative group when compared to the non-investigative occupational group. It was also found that as the occupational stress increases, the possibility of having PTSD also increases. **Conclusions:** These findings emphasize the importance of prioritizing mental health support and implementing revised coping mechanisms and preventive strategies within crime investigative occupational settings. Consequently, proactive measures should be taken to safeguard the mental health of crime investigative professionals, ultimately fostering a healthier and more resilient workforce.

Keywords: PTSD, Crime Investigators, Non-Investigative Professionals.

SPO18**ADVANCES IN FORENSIC SCIENCE: ATR-FTIR FOR INK EXAMINATION**Ankita Pundir¹¹PhD Research Scholar, Lovely Professional University**Abstract**

Forensic ink examination has seen major improvements thanks to Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy (ATR-FTIR). This advanced technology, known for being non-destructive and highly sensitive, has changed the way we analyze ink compositions, allowing us to get detailed molecular information. Recent studies from 2018 to 2024 have focused on using ATR-FTIR along with chemometric techniques to make forensic investigations more accurate and efficient. This review looks at how ATR-FTIR works, its use in ink analysis, and recent advancements, showcasing its significant impact on forensic science. Ink analysis is essential in forensic science, art authentication, and examining historical documents. Traditional methods like thin-layer chromatography and gas chromatography-mass spectrometry have provided valuable insights but often require extensive sample preparation and can be destructive. ATR-FTIR, on the other hand, uses infrared radiation to interact with the sample, creating a spectrum that acts like a molecular fingerprint. Studies have shown its effectiveness in identifying organic compounds, pigments, and additives in inks, which is crucial for distinguishing different ink types and detecting counterfeits. Recent research highlights the integration of ATR-FTIR with chemometric analysis, which helps in handling complex data and improving the reliability of forensic results. ATR-FTIR has proven to be a crucial tool in forensic ink examination, offering unmatched sensitivity and detailed molecular information. Its non-destructive nature makes it perfect for analyzing valuable documents and artworks without causing any damage. Combining ATR-FTIR with advanced chemometric techniques has further strengthened its role in modern forensic science. Future research should aim to address current challenges like spectral interference and expand the technique's use in a wider range of forensic and industrial situations. As ATR-FTIR technology continues to evolve, it promises to enhance the precision and reliability of ink analysis, solidifying its importance in various scientific fields.

Keywords: ATR-FTIR, Forensic Ink Analysis, Chemometric Techniques, Non-Destructive Analysis, Molecular Characterization.

SPO19

UNRAVELLING THE EFFECT OF HANDWRITING IN DIABETES MELLITUS PATIENTS- A GUIDE

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Abstract

Introduction: Handwriting is a conceptual perceptual-motor task that is referred to as a neurological process. It is influenced by neuromuscular coordination, but diseases like diabetes mellitus impact this system, causing persistent hyperglycemia and impaired glucose production. The most prevalent disease, diabetes, is essentially a prolonged metabolic disorder that impairs the body's ability to produce glucose. Diabetes mellitus has a major influence on the neuromuscular system, causing muscle dysfunction, mobility, and physical function deficits, as well as diminished muscle mass and strength. This will have an impact on the handwriting of a person with diabetes mellitus, but there is a need to investigate it. This study aims to review published research on handwriting kinematic analysis in diabetes mellitus patients and other neurological diseases. The study focused on analyzing the handwriting of individuals with diabetes mellitus compared to those without the disease and the main methodology of this research article is to identify research gaps and future directions for investigating the relationship between diabetes mellitus and the impact on handwriting quality, considering the potential influence of diabetes mellitus on motor control and coordination. Studies based on the analysis of handwriting have revealed that patients with diabetes mellitus may have abnormalities in handwriting and revealed that diabetes mellitus affects the neuro-muscles, since they may have difficulty with grip strength, fine motor skills, and exact motions. It suggests further research is needed to understand the specific mechanisms affecting handwriting and if early detection and intervention could improve it. This understanding could lead to better management and treatment strategies for individuals with diabetes mellitus. Future research should also explore unexplored areas which are to examine the effect of diabetes mellitus on handwriting of different age groups and also to determine prolonged diagnosis on handwriting in individuals with diabetes mellitus.

Keywords: Diabetes Mellitus, Handwriting, Forensic Examination, Neuro-Muscles.

SPO20

BODY POSTURE AND ITS IMPACT ON HANDWRITING

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Abstract

In Forensic Science, question document examination has a major significance concerning handwriting analysis. Although handwriting is significantly affected by body posture, it has not been sufficiently studied. The presented research aimed to identify how different body postures affected an individual's handwriting. Text samples were collected from 100 individuals, aged 18 to 50, produced in three different postures: normal sitting (SP) and two standing positions (standing by placing writing surface on the table (ST1) and by placing it on hand (ST2)). The analysis of handwriting samples involved the careful identification and comparison of class and individual characteristics. SP samples were used as reference samples and ST1 and ST2 were compared with the SP samples. Eight class characteristics and ten individual features were analysed in each sample and evaluated as same or different. Even though no significant difference was seen, variation occurred in Pen pressure, Line quality, Alignment and left margin shape.

Keywords: Body Posture, Handwriting, Line Quality.

SPO21**INVESTIGATING THE FACILITATION OF ILLICIT ACTIVITIES ON SOCIAL MEDIA PLATFORMS: A CASE STUDY OF INSTAGRAM**Goutham Ramesh¹¹Garden City University**Abstract**

The rapid growth of social media has completely changed the way we connect, share, and interact online. Instagram, known for its easy-to-use interface and focus on visuals, has become a favourite platform worldwide. But alongside its positive impact, Instagram has also become a hub for illicit activities like sharing pornographic content and promoting online prostitution. This research aims to delve into the extent and methods of these illicit activities on Instagram, as well as how people evade the platform's rules and how it affects users and the platform as a whole. This study will employ a mixed-methods approach, combining quantitative analysis of Instagram accounts with qualitative insights from existing research. The quantitative analysis will involve examining Instagram accounts that engage in distributing pornographic content or promoting online prostitution to understand patterns, trends, and user behaviours. The qualitative component will involve reviewing previous studies and articles to gain insights into the strategies used by users to circumvent content moderation and the responses from the platform and regulatory bodies. The findings of this research will contribute to a deeper understanding of the challenges faced by social media platforms in regulating and moderating content. It will also provide valuable insights into the implications for law enforcement and policy-making in the digital age. By understanding how users exploit Instagram's features for illicit activities, this research aims to inform the development of more effective strategies to combat the misuse of social media platforms. Ultimately, this study seeks to enhance platform security, protect users, and strengthen legal frameworks to ensure a safer online environment.

Keywords: Social Media, Instagram, Behaviours, Illicit Activities.

SPO22**STATURE AND GENDER DETERMINATION FROM EAR MORPHOMETRY AMONG MALAYSIAN INDIANS FROM FORENSIC PERSPECTIVE**

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Abstract

Introduction and aim: Identifying a person is known as personal identification. Among the various identification components determining one's gender is a vital and one of the most essential criteria in establishing an individual's identity. Recognition methods include fingerprints, dental records, DNA testing, and anthropometric measures. Ear morphology analysis contributes to understanding sexual dimorphism and stature in the human population, with variations observed across different regions. A pioneering study in Malaysia, investigated ear morphometry for stature and gender determination among Malaysian Indians. Methodology: The study specifically focused on individuals of Indian descent, aged 20 and above, residing in Selangor, Malaysia. The sample comprised 100 males and 100 females from the Indian ethnic group. Results: The results revealed a strong relationship between stature and ear measurements and gender and ear measurements in the study population. T-test analysis identified 5 significant and 3 insignificant measurements. Linear regression analysis indicated that, in males, the lobular length in the right ear exhibited the highest significance ($R^2=0.123$), while in the left ear, conchal width showed the highest significance ($R^2=0.083$). For females, the right ear exhibited the highest significance in lobular width ($R^2=0.057$), and the left ear showed the highest significance for auricular length ($R^2=0.079$). Conclusion: The findings suggest that ear morphometry can be a reliable tool for sex discrimination and stature determination. However, it is essential to note that the regression equation derived from this study is applicable specifically to the Indian population residing in Malaysia and may not be generalized to other populations within Malaysia or worldwide.

Keywords: Forensic Anthropology, Ear Morphometry, Stature, Gender, Indians, Malaysia.

SPO23

**ILLUMINATING BRAIN FINGERPRINTING: DECIPHERING BRAIN
RESPONSES TO RELEVANT INFORMATION**Shayan Chakraborty¹¹Kristu Jayanti College**Abstract**

An advance neuroscientific method called "brain fingerprinting" has become a potential tool for interpreting how the brain reacts to specific data. This review discusses the basic ideas, development over time, and various uses of brain fingerprinting methods. After providing an overview of the idea, the study analyses the past, tracing the development of techniques for brain fingerprinting and highlighting major developments in the field. The paper goes on to explain the basic ideas behind brain fingerprinting and the methods by which brain responses are measured and examined. In particular, the usefulness of neuroimaging techniques like EEG, fMRI, and MEG in identifying brain correlates of relevant data processing is carefully examined. The review looks at studies that investigate brain responses related to perception, attention, memory, and decision-making, with a focus on the neurological correlates of important data. In forensic investigations, lie detection, security screening, marketing research, and tailored treatment, among other contexts, these brain markers are essential signs for locating relevant data. Brain fingerprinting has limitations and obstacles even with its potential. These problems are covered in the review, along with challenges with validity, reliability, and ethical considerations. The report also makes predictions about the future of brain fingerprinting research, pointing out new developments in trends and technology that may improve the technique's precision and usefulness. This analysis concludes by highlighting the importance of brain fingerprinting in providing insights on how the brain reacts to important data. It seeks to contribute to ongoing conversations and improvements in forensic science, psychology, neuroscience, and other fields by offering a thorough overview of the topic. With further investigation and interdisciplinary cooperation, brain fingerprinting could transform the understanding of human behaviour and mental processes. This report also analyses the recent case studies related to this technique.

Keywords: Brain Fingerprinting, Information Processing, Lie Detection, Neurological Signatures, Forensic Investigations.

SPO24

**FLIGHT TO EXTINCTION: THE BLUE MACAW'S STRUGGLE
AGAINST THE ILLEGAL PET TRADE**Suchithra J S¹, Ashwin Edakkara², Abhishek Singh³^{1,2,3}National Forensic Sciences University, Goa Campus, Goa**Abstract**

The Hyacinth Macaw, a striking blue macaw, is once again at risk of extinction due to the illegal pet trade. Since the 1980s, a significant number of these birds have been captured each year for illegal trade, resulting in a substantial decline in the wild population. It is estimated that there are currently around 10,000 Hyacinth Macaws in captivity. While habitat destruction remains a major threat, this evidence highlights the devastating impact of the pet trade on these magnificent birds. This research on the Hyacinth Macaw population involved data integration from various sources, focusing on both wild individuals and those in captivity. A detailed observation was made on illegal pet trading across different regions, including the native Brazilian market and international markets. By applying statistical analyses, we evaluated the impact of the pet trade on population dynamics. In our study, we investigated the impact of captivity resulting from the pet trade on the wild population of Hyacinth Macaws. Our findings revealed that out of the estimated 10,000 birds in captivity, approximately 50% were primarily destined for the Brazilian market. Despite changes in the bird's protection status, the rate of capture for the pet trade has significantly increased. Hyacinth Macaws are known for their neurotic behavior, which makes their breeding challenging. Unfortunately, this difficulty has led to an increased demand for illegal trade in Hyacinth Macaw eggs. While international and national trade of these birds is currently strictly prohibited, a new avenue for illegal trade has emerged through the sale of captive-bred birds and their offsprings which is legal. To combat this illicit trade, stringent policies are necessary to address both legal and illegal organized markets.

Keywords: Hyacinth Macaw, Pet Trade, Captivity, Endangered, Population Dynamics.

SPO25

**FORENSIC EXAMINATION OF THE EFFECT OF PSYCHOTROPIC
MEDICATION / SUBSTANCES ON HANDWRITING**Jatinder Kaur¹, Manpreet Kaur², Arpita Sharma³¹Department of Forensic Science, School of Bioengineering and Biosciences, Lovely
Professional University, Phagwara, Punjab, India**Abstract**

Handwriting, as the visual representation of thoughts, has evolved from early attempts to depict external objects through traditional hieroglyphic pictures. It encompasses visual expressions in the form of signs or marks, which undergo changes over time due to various physical and mental influences such as physical trauma, mental disorders, and accidents. An individual's emotions, personality, and handwriting are intricately linked, with handwriting serving as a reflection of one's emotional state and personality. Additionally, handwriting can be affected by medication and psychotropic substances, further complicating its analysis. The misuse of drugs, particularly those with deleterious effects on the neurological system, poses significant challenges for criminologists, sociologists, and medical professionals alike. Document examiners often encounter difficulties in assessing handwriting affected by psychotropic medication, particularly in cases involving the abuse of tranquilizers. While numerous studies have explored the impact of psychotropic medication and alcohol on handwriting quality, many have relied solely on observational data without statistical analysis. The primary responsibility of a handwriting examiner is to determine the consistency between the sample under examination and the known sample. Therefore, this article aims to elucidate how handwriting may differentiate between individuals under the influence of psychotropic medication or alcohol. While handwriting analysis may offer insights into sobriety levels, the substantial variability necessitates cautious interpretation by the examiner. This article underscores the importance of understanding the changes in handwriting following the consumption of psychotropic medication or alcohol.

Keywords: Psychotropic Medication, Forensic Examination, Handwriting.

SPO26

**COMPARISON OF HANDWRITTEN SIGNATURE SAMPLES USING
DIFFERENT TYPES OF PENS**Nithyapriya Sajeev¹¹Garden City University**Abstract**

Graphology, in forensic science, refers to the study and analysis of handwriting to infer the psychological state of the writer and to identify authorship of documents. Handwritten signatures, a crucial aspect of graphology, serve as unique identifiers and are often used for authentication purposes in legal and financial documents. This study aimed to explore the 'comparison of handwritten signature samples using different types of pens', including blue ink Ballpoint pen, Rollerball pen, Gel pen, Fountain pen, Marker (Fine tip) pen and a black ink Calligraphy pen (due to the unavailability of blue ink for the latter), to understand how each pen can affect the writing according to its manufacture and its ink deposition while writing. The inks used in these, whether dye or pigment-based, ink flow, and manufacture of the pens, including the difference in tip structure, significantly impact the signature or handwriting. A total of 100 signature samples were collected from individual aged 16 to 80 and the research was held in Kerala. The analysis focused on the class characteristics such as alignment, size, spacing, pen pressure, line quality, slant, embellishments, tremors, movement and pen lift, as well as individual characteristics like loop, spur, hook, strokes, staffs, caps etc. Researchers such as Kao (1967, 1977, 1979) have investigated the effects of writing instruments on handwriting quality, writing pressure and writing speed. For instance, ballpoint pens yield the fastest writing speed but require the highest writing pressure, while felt-tip pens require the least pressure. The grip and design of the pen also plays a role in writing comfort and efficiency, noted by Wynn-Parry (1966), Wu and Luo (2006c), and Udo et al. (2000). Handwriting performance however, appears to be directly affected by finger pressure on the writing instrument, point pressure of the writing implement on the writing surface and the pressure of the hand on the writing surface (Bailey, 1988). The findings of this study reveals that different types of pens impart distinct features to the signature. The hand's complex and neuromuscular coordination and individual writing habits, and age as well, developed over a lifetime, contribute to unique writing styles that forensic experts analyze to identify authors and detect forgeries. This study highlights the importance of accounting for natural variations in signature while using the different types of pens emphasizing the need for multiple comparison samples. The findings have significant implications for forensic document examination, legal and financial security. Understanding the effects of different writing instruments and the inherent natural variation in signature is crucial for accurate document analysis.

Keywords: Graphology, Handwritten Signatures, Types of Pens, Comparison, Class Characteristics, Individual Characteristics, Natural Variation.

SPO27**EVALUATING XRY AND UFED EXTRACTION SUCCESS AND FAILURE RATES FOR PHONES GROUPED BY CHIPSET MANUFACTURER**Bhanuthejas S Shetty¹¹Garden City University**Abstract**

This study evaluates the effectiveness of two mobile forensic data extraction methods, XRY and UFED, on phones categorized by their chipset manufacturer. The analysis aims to identify success and failure rates for each extraction method across different chipset brands. By comparing XRY and UFED, the research seeks to determine which method yields superior results for specific chipset manufacturers. Additionally, the investigation will explore whether certain chipset manufacturers are more suitable with either method. The findings of the study will be represented using graphs. The findings of this study can provide valuable insights for forensic practitioners, allowing them to make informed choices about data extraction techniques based on the phone's chipset manufacturer.

Keywords: XRY, UFED, Phones, Chipset.

SPO28**COMPARATIVE STUDY OF DNA YIELD FROM VARIOUS BLOOD SAMPLES COLLECTED UNDER DIFFERENT CONDITIONS**Saraswath Ruchita Sharma¹¹Garden City University**Abstract**

Forensic/DNA analysis is completely based on the extraction of DNA from the biological samples available at crime scenes. Blood being one of the commonly available sample sources from crime scenes, is generally used for DNA extractions. DNA profiling and sequencing depend on the quantity of DNA below which the analysis becomes practically not possible. Thus, extraction methods used for sample processing must be accurate and specific based on the type of sample obtained to yield maximum DNA from available samples. Current work involves analysis of different types of blood samples that can be possibly obtained from crime scenes which include: blood-stained cloth, blood dried on a glass surface, blood absorbed on cotton fiber, blood spread on a floor, and fresh blood obtained from the suspect. All the samples were subjected to DNA extraction using different protocols for testing the yield. DNA extracted was subjected to purification, agarose gel run, and quantification. Based on the results obtained it would be possible to suggest a specific method for a given type of sample for maximum extraction yield of DNA.

Keywords: DNA Extraction, DNA Analysis, Quantitative Estimation, Agarose Gel Electrophoresis, Quantification, Purification.

SPO29**DNA-BASED MUTILATION VICTIME IDENTIFICATION: Case Report**

Sari Nur Indahty Purnamaningsih¹, Ahmad Yudianto²

¹Resident of Forensic Medicine and Medicolegal Specialist Program, Faculty of Medicine,
Airlangga University

²Head of Forensic Medicine and Medicolegal Department, Faculty of Medicine,
Airlangga University, Surabaya, Indonesia

Abstract

Introduction: Mutilation is the separation of one member of the body from the other by an unnatural cause, which is a crime. Murder accompanied by mutilation has a high level of difficulty to solve. But it's different in terms of deaths from fires, explosions, plane crashes, or mutilations. To determine the identity of the victim, gender, age, and cause of death of the mutilation victim or other fatal incident, a complete autopsy is required, among other things: a dental examination and DNA analysis. **Methods:** In this study, the authors conducted research with DNA matching using eight loci: VWA, D21S11, TH01, TPOX, D3S1358, FGA, D13S317, and CSF1PO on both muscles of the body parts of the corpse with a size of 5 cm x 5 cm x 5 cm, respectively. **Results:** The findings showed the DNA content of both upper and lower body muscles could still be obtained from the from the STR locus against the purity of the upper body muscle sample (A) and the lower body (B) muscle samples of the body that were mutilated through the STR locus examination for DNA purity ranging between 1.73 and 1.76 with a DNA limit purity value of 1.5 and 2. On the locus of VWA, D21S11, TH01, TPOX, D3S1358, FGA, D13S317, and CSF1PO, both parts of the body come from one corpse. **Conclusion:** This finding suggests that, under certain conditions, muscles can still be used as a source of forensic DNA identification.

Keywords: Mutilation, DNA Identification, STR Locus, Muscle.

SPO30

ANALYTICAL METHOD VALIDATION FOR THE DETECTION OF PHARMACEUTICAL OPIOIDS IN CURRENCY NOTE

Diksha Thakur¹, Neeti Prakash Dubey², Rajvinder Singh¹

¹Department of Forensic Science, Maharshi Dayanand University, Rohtak, Haryana, India

²Regional Forensic Science Laboratory, Rohini, New Delhi, India

Abstract

Forensic Chemistry examines non-biological samples like currency notes to elucidate the type of drug abused. Currency notes are the helping aid that an abuser utilizes to snort drugs. Examination of such notes helps a forensic analyst examine the different substances abused, especially in cases where biological samples aren't available for analysis. This paper presents a novel validated method that can be used in forensic laboratories to generate chemical profiles of the drugs that are snorted using currency notes. The forensic analyst can render this validated method for the routine examination of the currency note exhibits received in forensic science laboratories.

Keywords: Forensic Toxicology, Drug abuse, Currency note, Extraction, Paraphernalia, Forensic Science.

SPO31

AUTOPSY FINDING ON NEONATICIDE: CASE REPORT

Ibnu Chaldun¹, Ahmad Yudianto²

¹Resident of Forensic Medicine and Medicolegal, Faculty of Medicine, Airlangga University, Surabaya, Indonesia

²Department of Forensic Medicine and Medicolegal, Faculty of Medicine, Airlangga University, Surabaya, Indonesia

Abstract

Introduction: Neonaticide is the deliberate killing, or homicide, of a child within 24 hours of its birth. The historical evidence thus points to three risk factors for neonaticide : female gender; economics; and congenital abnormality. **Case presentation:** A 19-year-old woman received treatment for bleeding from birthing a baby in a school toilet at 10 a.m. During the external examination, a female baby weighed 2950 gr, had a length of 51 cm, and had a sufficient nutritional impression. The baby's head measures 34 centimetres, its chest measures 33 cm, its abdomen measures 31 cm, and both upper arms measure 11 cm. The baby exhibits a dilation of blood vessels in the mucous membranes of both upper and lower eyelids, bluishness in the top and bottom lips, a umbilical cord that persists at 16 cm in length, uneven ends, and a pale red color. The tips of the fingers and nails exhibit bluishness, affecting all four limbs involved in movement. The brown-green dirt in the anus is as thick as a spoonful. The autopsy findings showed that the right and left lungs had expanded and filled the chest cavity, causing blood vessels to spread across the surface of both the large and small brains. An additional examination revealed a lung lump test, a positive middle ear test, and positive recurrence cores on the chest bones, heel bones, and hip ends. **Conclusions:** Lack of oxygen over a relatively long period of time leads to death in newborn babies.

Keyword: Asphyxia, Autopsy, Homicide, Neonaticide.

SPO32

FORENSIC FACIAL RECONSTRUCTION

Dr. Vikram S. Amberkar¹

¹College of Dental Sciences

Abstract

Forensic facial reconstruction /forensic facial approximation is the process of recreating the face of an individual (whose identity is often not known) from their skeletal remains through an amalgamation of artistry, forensic science, anthropology, osteology and anatomy. Over past 25 years, many computer based systems have been developed, and with the recent rapid advances in medical imaging and computer technology, the current systems claim high level of efficiency, objectivity and flexibility. Facial reconstruction allows visual identification by the individual's family and associates to become and more definite. This technique is not only used for identification of individual from skeletal remains but is also used for archeological research purpose.

Keywords: Facial Reconstruction, Computer Technology, Archeological Research.

SPO33

ENHANCING LATENT FINGERPRINT IDENTIFICATION THROUGH AI-DRIVEN ANALYSIS: INNOVATIONS AND APPLICATIONS IN FORENSIC SCIENCE

S Darshan¹¹PhD Scholar, JSS Medical College

Abstract

Latent fingerprint identification is still the foundation of forensic investigations, although it can be difficult and time-consuming to identify someone whose prints are poor quality, incomplete, or deteriorated. With an emphasis on advancements in AI-driven analysis to improve the precision, effectiveness, and dependability of latent fingerprint recognition, this study investigates the revolutionary potential of artificial intelligence (AI) in addressing these difficulties. The study explores the use of deep learning algorithms for pattern recognition, feature extraction, and fingerprint enhancement. The research shows notable advances in the identification process by combining AI with conventional forensic techniques, especially in complicated settings with unclear or incomplete prints. AI lowers the margin of error by automating laborious human operations and introducing a better degree of precision in comparing latent prints to pre-existing databases. This study also emphasises the creation of AI-driven forensic technologies that are easily incorporated into current forensic workflows. The way forensic professionals handle latent fingerprints could be revolutionised by these technologies, which have the ability to solve crimes more quickly and accurately. These instruments are outfitted with sophisticated image processing and machine learning capabilities. The results of this study highlight the significance of ongoing innovation in forensic science, especially when it comes to the application of AI technologies. In order to preserve the accuracy and efficacy of fingerprint identification as forensic requirements change, it will be imperative to implement AI-driven techniques, which will eventually promote justice.

Keyword: Forensic Investigations, Artificial Intelligence, Latent Fingerprint.

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Certified Forensic Document Examiner
Osborn & Son



Heidi H. Harralson
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K. V. Ravikumar
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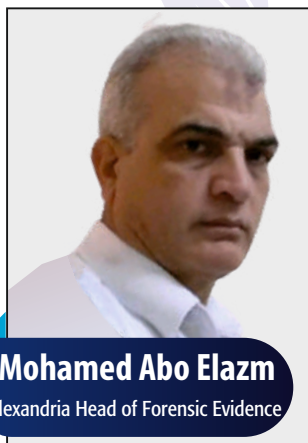
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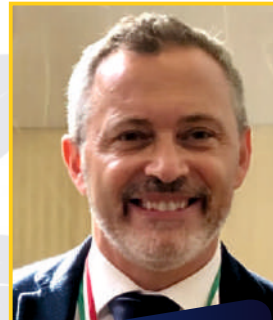
CHALLENGES IN IDENTIFICATION OF HUMAN REMAINS: A FORENSIC ODONTOLOGY PERSPECTIVE

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INDIA



NEW TECHNOLOGIES IN FORENSIC ODONTOLOGY AS AN EMERGING FIELD

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DENTAL IDENTIFICATION POSSIBILITIES IN THE ABSENCE OF DENTAL RECORDS

Dr. Khalid Khalid
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PMCT AND IDENTIFICATION - THE CHANGING LANDSCAPE OF FORENSIC ODONTOLOGY

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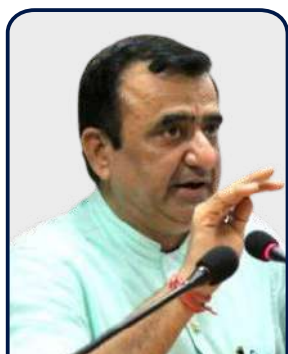
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Rakshit Tandon

Digital Forensics
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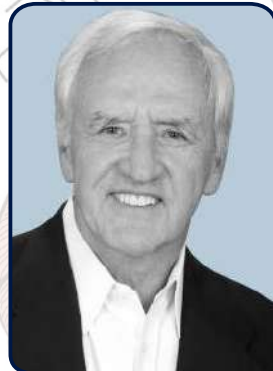
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Practical uses of Layered Voice Analysis in Human Capital and Personality Assessment



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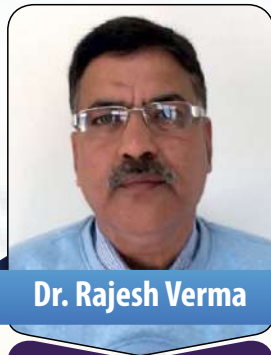
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**Digital Autopsy
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Role of Forensics in Personal Data Protection



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Cybersecurity Ignorance can be Disastrous



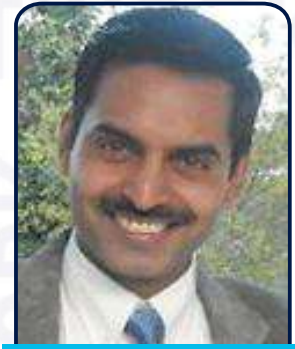
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Our Factory Settings Are Changing



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Cyber Security Organisations in India and Reporting of Cyber Crimes



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CRIME SCENE
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THE STARS:
REFLECTING ON
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OF EVIDENCES
USING
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CHALLENGES IN
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SACH : A Truth

Lie detection in the Judicial System
vs Investigate Needs

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Pre-Conference Workshop

25th August 2022, Virtual Hall 2

Resource Person

Medical Certificate by Doctor *Legal & Ethical Issues*



Prof. (Dr.) Mukesh Yadav
Rani Durgavati Medical College
(formerly Govt. Allopathic Medical
College), Banda



Prof. (Dr.) Vijay Pal Khanagwal
Prof. & HOD, Dept. of Forensic Medicine,
Kalpana Chawla Govt. Medical College
Karnal



Prof. (Dr.) Akhilesh Pathak
Prof. & HOD, Dept. of Forensic Medicine &
Toxicology, AIIMS, Bhatinda

REGISTRATION

SCHEDULE

10:00 AM to 01:00 PM IST

REGISTRATION FEE

STUDENT-INR 250

PROFESSIONAL-INR 500

To Register, visit

www.forensicevents.com

Pre-Conference Workshop

25th August 2022, Virtual Hall 2

Resource Person

Dental Age Estimation in Children and Juveniles:

Prediction of the Attainment of Age
Thresholds of Medicolegal Importance

Dr. Sudheer B. Balla

Asst. Prof. & HOD, Dept. of Forensic Odontology
Panineeya Institute of Dental Sciences & Research
Centre, Hyderabad



REGISTRATION

SCHEDULE

02:00 PM to 05:00 PM IST

REGISTRATION FEE

STUDENT-INR 250

PROFESSIONAL-INR 500

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Pre-Conference Workshop

25th August 2022, Virtual Hall 3

Resource Person

Acid Attack Survivors: Social Acceptability



Laxmi Agarwal
Acid Attack Survivor
Founder, The Laxmi Foundation



Prof. (Dr.) Abha Singh
Sr. Expert Behavioural Psychologist



Dr. Navpreet Kaur
Co-Founder, The Laxmi Foundation
Advocate



Rashi Juneja
Director & Clinical Psychologist
MindEase Pvt. Ltd.

REGISTRATION

SCHEDULE

10:00 AM to 01:00 PM

REGISTRATION FEE

STUDENT-INR 250

PROFESSIONAL-INR 500

To Register, visit

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Pre-Conference Workshop

25th August 2022, Virtual Hall 3

Silent Witnesses Speak at Crime Scene:

Clue from Scene of Crime

Resource Person



Dr. Vinod Dhingra
Forensic Scientist
RFSL, Gwalior, M.P.

Dr. Harsh Sharma
Retd. Director
Forensic Science Laboratory, MP



REGISTRATION

SCHEDULE

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REGISTRATION FEE

STUDENT-INR 250

PROFESSIONAL-INR 500

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Conference

Scientific Sessions

26th August 2022



Dr. Henry C. Lee
Emeritus Professor & Vice President
Institute of Forensic Science
University of New Haven, USA



**Katherine Mainolfi
Koppenhaver**
Certified Questioned Document Examiner
Forensic Document Examiners, Inc., USA



Thomas Mauriello
Senior Lecturer and Forensic Consultant
University of Maryland
Department of Criminology and
Criminal Justice (CCJS), USA



Thomas P. Riley
Riley Forensic Science
Consulting and Training, LLC, USA



Mohinder Singh
Former GEQD at CFSL
Shimla & Hyderabad



Deepa Verma
Director
Forensic Science Laboratory
Government of N.C.T., Delhi, INDIA



Shams Tahir Khan
C.S.I. Anchor/Reporter
T.V. Today Network Ltd., INDIA



Tracy Alexander FKC
DVI Co-ordinator, UK Home Office
Dir. of Forensic Services, City of London Police
President, British Academy of Forensic Sciences, UK



Dr. G. S. Sodhi
Associate Professor
Forensic Science Unit
S.G.T.B. Khalsa College, DU, INDIA

Conference

Scientific Sessions

27th August 2022



Prof. Jason Payne-James

Specialist in Forensic & Legal Medicine
Honorary Clinical Professor, William Harvey
Research Institute (WHRI), London, UK



Dr. Selina Leow

Principal Dental Surgeon, Australia
Deputy Chairperson (Forensic Odontology Sub-
working Group, INTERPOL DVI Committee)
AUSTRALIA



Prof. Emilio Nuzzolese

Associate Professor
Legal Medicine
University of Turin, ITALY



Sheryl McCollum

Crime Scene Investigator
WGCL-TV/CBS46, USA



Dr. Rashed Alghafri

Forensic Scientist
Dubai Police HQ
UAE



Dr. Robert Green OBE

Reader in Forensic Science
Chemistry & Forensic Science
University of Kent, UK



Dr. Hemlata Pandey

Asst. Prof. & Odontology Consultant
Dept. of Forensic Medicine
Seth GS Medical College & K.E.M. Hospital
Mumbai, INDIA



**Prof. Rajinder Singh
Chandel**

Professor & Head
Dept. of Forensic Science, PU
Patiala, INDIA



Prof. Kewal Krishan

Professor, Dept. of Anthropology
Panjab University
Chandigarh, INDIA



**Prof. Mohammad
Nasimul Islam**

Professor, Faculty of Medicine
Universiti Teknologi MARA
MALAYSIA



Dr. Evi Untoro

Forensic Pathologist
University of Trisakti
INDONESIA

Conference

Scientific Sessions

28th August 2022



Ronald Nichols

Firearm and Toolmark Examiner and Consultant
Nichols Forensic Science Consulting
Director of Customer Success, Evidence IQ, USA



Dr. Asha Srivastava

Director
Central Forensic Science Laboratory
CBI, New Delhi, INDIA



Will Dodds

Sergeant
In-Charge of Forensic Unit
Saanich Police Department in Victoria
British Columbia, USA



Steven David Lampley

Author & Director,
Oliphant Institute of Forensics
USA



Keshav Kumar, Ex IPS

Retd. Director General of Police
Retd. Director, Anti-Corruption Bureau
INDIA



Dr. Ajay Sharma

Director
State Forensic Science Laboratory
Jaipur, Rajasthan, INDIA



Sanjay Sahay, Ex IPS

Founder & Director
TechConPro Pvt Ltd, INDIA



Dr. Pavan Duggal

Advocate, Supreme Court of India
Chairman, International Commission on
Cyber Security Law, INDIA



Dr. G. Rajesh Babu

Associate Professor
School of Forensic Science
NFSU, Gandhinagar, INDIA



Dr. Gaurav Gupta

Additional Director/Scientist 'E'
Ministry of Electronics & Information Technology
Author, Cyber Unsafe, INDIA



Prof. John Walker

Principle, Shadow-Intelligence (Si)
Visiting Professor
Nottingham Trent University, UK

24th - 27th
August 2023

14th INTERNATIONAL
CONFERENCE-2023

FORENSIC SCIENCE



PLATFORM
Zoom





14th INTERNATIONAL CONFERENCE-2023

FORENSIC SCIENCE

Pre-Conference Workshop

24th August 2023

Workshop on

Forensics to Protect the Vulnerable

An Universal Approach



Dr. Evi Untoro

AFOHR Treasurer



Dr. Hemlata Pandey

AFOHR President



Prof. Emilio Nuzzolese

AFOHR Founder President

[CLICK HERE TO REGISTER](#)

2:00PM to 5:00PM

Scientific Sessions

25th August 2023



John A.J.M. Riemen

Lead Specialist,
Dutch Police and Manager and Custodian
National Criminal ABIS



Asha Srivastava

Professor of Practice
Dean, School of Behavioural Forensics
Centre Head, CoE, Investigative & Forensic Psychology
Centre Head, Centre of Happiness & Wellbeing



Dr. Jose I. Dela Rama Jr.

Professor and Dean
Tarlac State University, Philippines



Dr. G. S. Sodhi

Associate Professor & Coordinator
SGTB Khalsa College
University of Delhi



**Prof. Mukesh Kumar
Thakkar**

HOD, Dept. of Forensic Science
Punjabi University, Patiala



Dr. John Coxhead

Professor
Policing Praxis



Dr. Michael Harrison

Senior Lecturer, Economics & Finance
Royal Docks School of Business & Law
University of East London

Scientific Sessions

26th August 2023



Barry A. J. Fisher
Forensic Science Consultant



Dr. G. K. Goswami
Additional Director, General of Police
Founder Director, UPSIFS Lucknow



Dr. Eddy de Valck
Forensic Odontologist
DVI Federal Police, Belgium



Prof. (Dr.) Mukesh Yadav
Additional Director, Medical Education, Govt. of U.P
Principal, Rani Durgavati Medical College
(formerly, Govt. Allopathic Medical College)
Banda, Uttar Pradesh



**Prof. (Dr.) Ma. Teresa G.
De Guzman**
Professor, University of the Philippines, Manila
Executive Director
Interdisciplinary Research and Development



Dr. Hemlata Pandey
Lecturer and Program Leader
in Forensic Odontology
University of Dundee

Scientific Sessions

27th August 2023



Dr. Rakshit Tandon

Cyber Security Evangelist- Risk Advisory
Cyber Detect & Respond Leader



Maria Corazon A De Ungria

Head, DNA Analysis Laboratory
NSRI, UP Diliman
Academician, NAST



Samir Datt

Founder and CEO
ForensicsGuru.com



Adv. Bharat Chugh

Former Judge/Advocate



Kenan Idrizaj

Security Sciences
Homeland Security expert
Crime Analyst



Dr. Rakhi Khanna

Additional Director,
RFSL, Kota, Rajasthan

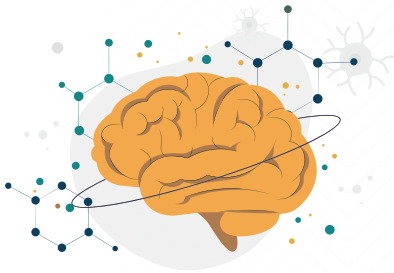


Courses offered by **SIFS INDIA**





FOUNDATION CERTIFICATE COURSES-2025



Forensic Psychology

Last Date to Register-25th Dec. 2024
Starting on-3rd Jan. 2025



Document & Fingerprint Examination

Last Date to Register-25th Jan. 2025
Starting on-3rd Feb. 2025



Cyber Forensics

Last Date to Register-25th Feb. 2025
Starting on-3rd March 2025



Forensic Odontology

Last Date to Register-25th Mar. 2025
Starting on-2nd April 2025



Cyber Security & OSINT

Last Date to Register-25th Apr. 2025
Starting on-2nd May 2025



Forensic Chemistry & Toxicology

Last Date to Register-25th May 2025
Starting on-2nd June 2025



Crime Scene Investigation

Last Date to Register-25th June 2025
Starting on-2nd July 2025



Graphology

Last Date to Register-25th July 2025
Starting on-4th August 2025



Forensic Accounting

Last Date to Register-25th Aug. 2025
Starting on-3rd Sept. 2025



Forensic Medicine & Human Identification

Last Date to Register-25th Sept. 2025
Starting on-3rd Oct. 2025



Forensic Nursing

Last Date to Register-25th Oct. 2025
Starting on-3rd Nov. 2025



Victimology & Criminology

Last Date to Register-25th Nov. 2025
Starting on-3rd Dec. 2025

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PROFESSIONAL COURSES



Forensic Science & Criminal Investigation



Document & Handwriting Examination



Cyber Forensic Investigation



Forensic Accounting



Human Identification



The Art of Cross-Examination



Cyber Security



Insurance Fraud Investigation



Forensic Photography



Crime Scene to Court Room



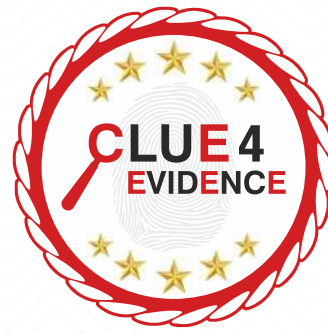
Forensic Psychology



ASSOCIATE DEGREE PROGRAMS

FSP 101  Forensic Science & Criminal Investigation	FSP 102  Fingerprint Examination & Analysis	FSP 103  Document & Handwriting Examination	FSP 104  Crime Scene Investigation	FSP 105  Graphology
FSP 201  Ethical Hacking & IT Security	FSP 202  Cyber Forensic Investigation	FSP 203  Cyber Law & Digital Forensics	FSP 204  Forensic Engineering	FSP 205  Private Investigation & Detective
FSP 301  Forensic Medicine & Toxicology	FSP 302  Forensic Accounting	FSP 303  Insurance Fraud Investigation	FSP 304  Forensic Photography	FSP 305  Forensic Biometric Analysis
FSP 401  DNA Fingerprinting	FSP 402  Forensic Drug Analysis	FSP 403  Forensic Biology & Serology	FSP 404  Ballistics & Firearm Study	FSP 405  Criminology & Victimology
FSP 501  Forensic Odontology	FSP 502  Forensic Entomology	FSP 503  Wildlife Forensics	FSP 504  Forensic Psychology	FSP 505  Forensic Anthropology

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