



24th - 25th
April **2021**

**Information
Booklet**

4th INTERNATIONAL eCONFERENCE-2021
Fingerprint Analysis

linktr.ee/forensicscienceinstitute, Contact us: +91 98188 77002

Supported by





GREETINGS FROM THE ORGANIZING DESK

The new era post the global pandemic has affected academics, establishments, and individuals' preparedness worldwide. Forensic Science has an interdisciplinary approach and its true essence can be proved meaningful with collaborative efforts of people present around the globe functioning together as a team. With a vision to bring all the academicians, students, and professionals and share their valuable contemplations, the 4th International eConference is structured to lead the way through endeavors focused to take Forensic to greater heights. We welcome every science enthusiast to become a part of this revolutionizing effort and explore the technological advancements, scientific researches, and opportunities for everyone to flourish.



Dr. Ranjeet Kr. Singh
President
International Association
Of Scientists and Researchers



Phaneendar B N
Forensic Expert, CEO
Clue4 Evidence Foundation



4th INTERNATIONAL eCONFERENCE-2021

THE ORGANIZER

INTERNATIONAL ASSOCIATION OF SCIENTISTS AND RESEARCHERS (IASR)

IASR is a non-profit organization focused to deliver the updated literature and research work to not only the global scientific and research society, but also to everyone. Providing open access to critically reviewed high-quality research papers and literature, it works with a mission of providing a user- friendly global platforms for researchers, scientists for sharing information, and dissemination of recent ground breaking researches and advancements in various fields working together for the betterment of the world.

About the eConference

Forensic Science has proffered techniques that have leveled up the competence of humankind and are staying up with the trend. At the outset, the International Association of Scientists and Researchers (IASR) in association with the Sherlock Institute of Forensic Science (SIFS) India organizing the 4th International eConference on “Fingerprint Analysis”, 2021. With utmost enthusiasm, the organizing committee invites the young minds and professionals of various disciplines of forensic science and become a part of the first-ever convention organized with the motto of bringing the unrecognized talents, present globally. The program would follow talks by eminent national and international experts accompanied by e-paper presentations, ePoster presentations, discussions, and scientific excellence awards.

Mission Statement

“Committing towards the fact of being a lead-follower of technology with a bold spirit of risk-taking, helping us make our presence noticeable worldwide”.





SPEAKER'S PROFILE



SHANE TURNIDGE

Fingerprint Expert
SST Forensics, Canada

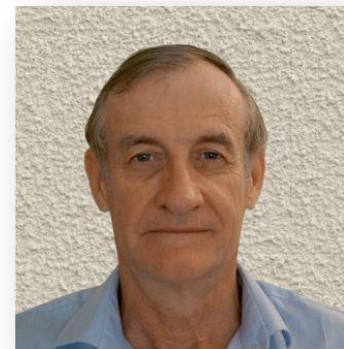
Fingerprint expert Shane Turnidge has been part of the forensic identification landscape in Canada for more than thirty years. Since retiring from public service, he has owned and operated an independent expert fingerprint and palm print consultancy, SSTForensics. His knowledge, skills, and experience were gained while working for both the Peel Regional Police and the Toronto Police Service in their respective Automated Fingerprint Identification System (AFIS) sections. He was also certified to search and save both latent fingerprint and latent palm print records on the RCMP AFIS database in Ottawa. As an author, he has been published in several peer-reviewed journals on several topics.



JOHN PATRICK MOLONEY

Director
Forensic Comparison Software, Australia

In 2008 employed as a consultant by the Australian Department of Immigration to introduce Fingerprint identification in to Immigration Processing. Achievement's include the integration of Australian Immigration Fingerprint database with Australia's National Fingerprint system NAFIS. As the manager of the Australian Federal Police Fingerprint Section adopted work practices that best equipped the Fingerprint team for the digital environment. John Moloney was appointed as Officer in Charge of the Northern Territory of Australia Fingerprint Section in 1998. Major achievements include the introduction of digital cameras for the capture of latent fingerprints at crime scenes and the introduction of Livescan for the capture of offender fingerprints.





4th INTERNATIONAL eCONFERENCE-2021

SPEAKER'S PROFILE



DR. NEETI KAPOOR

Assistant Professor,
Government Institute of Forensic Science, Nagpur, India

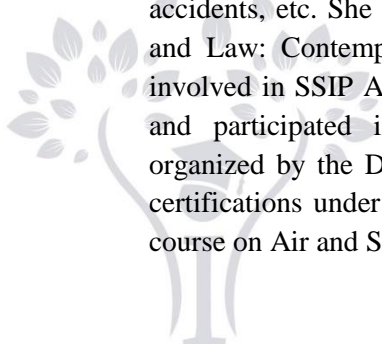
Dr. Neeti Kapoor is an Assistant Professor since 2012 at the Government Institute of Forensic Science, Nagpur. She has 28 international research paper publications and five international chapters to her credit. She is a recognized reviewer for over ten journals from reputed publishers such as Elsevier, Springer Nature, Routledge-Taylor & Francis, SAGE, and PLOS. She has delivered over 50 guest lectures and practical demonstrations on various aspects of Forensic Science to the Police Officers of Nagpur City Police, Bhandara District Police, Chandrapur District Police, Nagpur Rural under the Special IG Office Nagpur Range under In-Service training program, etc. She has been awarded Special Recognition for their contribution to “Scientific Aid to Investigation” by Nagpur City Police Commissioner in 2017, 2018, 2019.



HEENA GOSWAMI

Assistant Professor
Gujarat National Law University, Gujarat, India

Ms. Heena Goswami is currently serving as Dean of Extension and Capacity Building & Assistant Professor of Science & Technology. She has associated with Gujarat National Law University and having research experience working with Regional Forensic Science Laboratory, Junagadh. She has actively investigated multiple crime scenes like murder, hanging suicide, poisoning, motor vehicle accidents, etc. She is also an editorial member of Science technology and Law: Contemporary Issues in Biotechnology. She has actively involved in SSIP Annual International Conference organized by EDII and participated in 24th All India Forensic Conference jointly organized by the Directorate of Forensic Science. She has numerous certifications under the name form International Taxation, Certificate course on Air and Space Law.





SPEAKER'S PROFILE



MOHAMED ALSUWAIDI

**Fingerprint Chemical Development Examiner
Dubai Police, UAE**

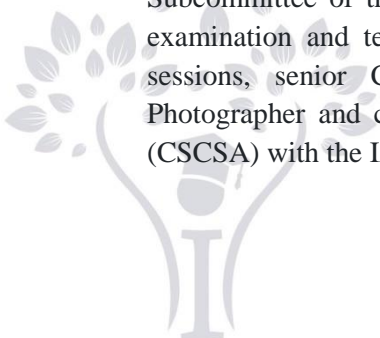
He is currently working as a Fingerprint Chemical Development Examiner since 2013 and also he is working with ISO Standards in Chemical Development Section since 2016. He graduated from the UK Undergraduate from the University of South Wales in Forensic Science and holds a master in instrumental analysis from the University of Central Lancashire. He also did a Diploma in Fingerprint from Ron Smith & Associates, Inc. In 2019, he completed his training from the USA FBI team in Forensic Photography. In 2017, he was trained to use the forensic scoop and in 2018, he was trained to use EVI scan. He was a member of the Dubai police scientist council (2017-2018). He has a membership in the International Association of Identification (IAI).



ANDREW REITNAUER

**Forensic Consultant
Delta Forensics, USA**

Currently, he is the Technical Lead Scientist for the Washington DC Department of Forensic Sciences, Latent Fingerprint Unit, and previously served as a Shift Supervisor for the Crime Scene Services Section, as well as being the owner of Delta Forensics, LLC, a forensic science consulting and training company. Currently, he is also an ASCLD/LAB approved internal auditor for laboratory standards. He is an initial member of the Friction Ridge Subcommittee of the OSAC through NIST. He is an expert witness examination and testimony, trainer of several topics and 20+ class sessions, senior Crime Scene Responder since 2006, Forensic Photographer and currently a Certified Senior Crime Scene Analyst (CSCSA) with the IAI.





4th INTERNATIONAL eCONFERENCE-2021

SPEAKER'S PROFILE

DUVAY HERNANDO BERRIO BERNAL



Forensic Instructor - Investigator - C.S.I.

Institute of Criminal Law and Criminal Sciences, Bogota

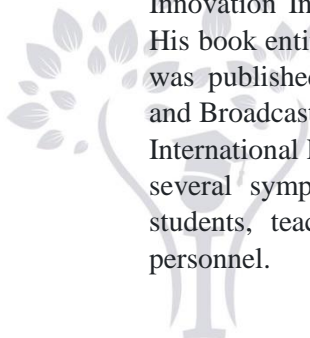
Duvay H. Berrio is the Fingerprint Examiner and Crime Scene Investigation Expert. He has an experience of 15 years in the field of Forensic Science. He worked as Legal Assistant, Criminologist Researcher, Fingerprint Examiner, Document Examiner, Biometric expert etc. He worked at National Agency of Investigators and Experts, Colombia, Bogota D.C. In 2005, he worked at Fingerfile Forensic Science Labs, Bogota D.C. He is also giving his contributions in teaching at Sergio Arboleda University. He has numerous publications under his name in various National and International journals.



DR. G. S. SODHI

Associate Professor,
SGTB Khalsa College, University of Delhi, India

Dr. G.S. Sodhi earned his Ph.D. degree from Delhi University and at present is an Associate Professor in Chemistry and Forensic Science at the S.G.T.B. Khalsa College, Delhi University. He has published 100 research papers and filed 10 Indian patents. He was Visiting Fellow, National Crime Records Bureau, Ministry of Home Affairs, New Delhi during 1996-97. He has successfully completed 10 research projects, sanctioned by the University Grants Commission, Department of Science and Technology, Indian National Science Academy, and the University of Delhi. He received Union Home Minister Award; National Technology Day Award; National Search for Innovation Award; Lockheed Martin India Innovation Award; and India Innovation Initiative Award for innovative work in forensic science. His book entitled Indian Civilization and the Science of Fingerprinting was published by the Publication Division, Ministry of Information and Broadcasting, Government of India in 2013. He is a Member of the International Fingerprint Research Group, Jerusalem. He has organized several symposia on and training courses in forensic science for students, teachers, army officers, and Indian and overseas police personnel.





4th INTERNATIONAL eCONFERENCE-2021

SPEAKER'S PROFILE



DR. KANCHANA KOHOMBANGE

**Director,
International Hand Analyzing Consultancy, Sri Lanka**

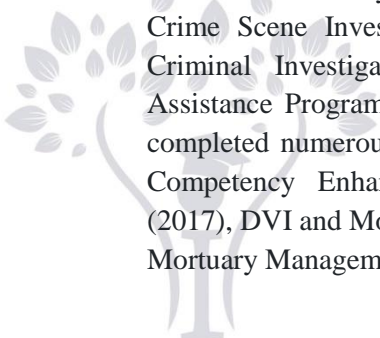
Dr. Kanchana is currently working as the Director of International Hand Analyzing Consultancy, has been conferred Research Doctorate from an International Open University in Kolkata, India. She owns the Largest Fingerprint Database in Sri Lanka and has about 12 years of research experience. She has undergone training in "Finger Print Science in Law Enforcement" at the Central Finger Print Bureau of National Crime Records Bureau (An Accreditation body for Finger Print Experts in India) New Delhi, India, and secured 1st position. She has studied forensic science and criminal investigation from Atma Ram Sanatan Dharma College, University of Delhi. The most common studies she has made so far is medical palmistry, scientific hand analysis, gestures, and identification of personality through hand analysis. Under these categories, she has already published many research papers in the national and international journals of repute. She is a growing researcher and writer for a period.



PUDJI HARDJANTO

**Republic Indonesia Police Officer
Crime Unit, Surabaya, Indonesia**

Pudji Hardjanto is currently working as a Republic Indonesia Police Officer at Crime Unit in Surabaya. He completed a Bachelor of Law in the year 2008 and Masters in Forensic Science in the year 2019 from the University of Airlangga. He has been trained in several Crime Scene Investigation training like CSI with NCIS (Naval Criminal Investigative Service) in 2008, CSI, Anti-Terrorism Assistance Programme with USA ATA in the year 2014. He also completed numerous Disaster Victim Identification courses such as Competency Enhancement on DVI Technic and Management (2017), DVI and Mortuary Management Course (2018), and DVI and Mortuary Management Course, JCLEC Semarang (2019).





Chairing Panel Day-1

Chairperson



Dr. Raju Tandan

B. T. Institute of Excellence, Sagar

Chairperson



Dr. Anu Singla

Dr. A.P.J. Abdul Kalam Institute of Forensic Science & Criminology, Bundelkhand University, Jhansi

Chairperson



Dr. Ashutosh Tripathi

SAGE Institute of Sciences, SAGE University, Indore

Chairperson



Dr. Anurekha Yadav

Forensic Science Laboratory, M.P.

Chairing Panel Day-2

Chairperson



Hemanta Kumar Panda

Retd. Fingerprint Expert
Bhubaneswar, Odisha

Chairperson



Dr. Kavita Sharma

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson



Dr. Vijay R Chourey

Government Holkar (Model Autonomous)
Science College, Indore

Chairperson



Dr. Swati Dubey Mishra

Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore



Chairperson for Scientific Presentations Day-1

PROFESSIONAL CATEGORY

PAPER PRESENTATION



Chairperson

Dr. Bhoopesh Kr. Sharma

SGT University,
Gurugram

Chairperson



Dr. Amarnath Mishra

Amity University,
Noida

PROFESSIONAL CATEGORY

ePOSTER PRESENTATION

Chairperson for Scientific Presentations Day-2

STUDENT CATEGORY

PAPER PRESENTATION



Chairperson

Dr. Richa Rohatgi

Amity University,
Gurugram

Chairperson



Dr. Rajeev Kumar

Galgotias University,
Greater Noida

STUDENT CATEGORY

ePOSTER PRESENTATION



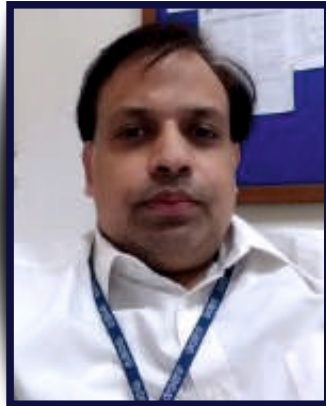
PROFESSIONAL CATEGORY

JURY MEMBERS FOR PAPER PRESENTATION



Dr. Gagandeep Singh

CRC Press,
Taylor & Francis Group
Patiala



Dr. Prashant Agrawal

College of Traffic
Management, IRTE ,
Faridabad (MDU Affiliated)



Dr. Kapil Kumar

Department of Forensic
Science, Gujarat University,
Ahmedabad



Dr. Manavpreet Kaur

Wikimedia Foundation
Punjab

JURY MEMBERS FOR ePOSTER PRESENTATION



Dr. Preeti Singh

National Post Graduate
Autonomous College
Lucknow



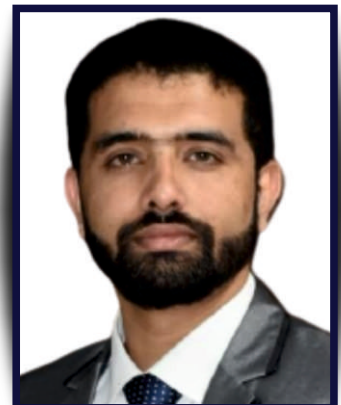
Dr. Richa Rohatgi

Amity University,
Gurugram



Dr. Neeharika Srivastava

GD Goenka University,
Gurugram



Mebin Wilson Thomas

JAIN
(Deemed-to-be University)
Bengaluru



STUDENT CATEGORY

JURY MEMBERS FOR PAPER PRESENTATION



V B Kashyap

Fingerprint Expert,
Haryana



Vinny Sharma

Galgotias University,
Greater Noida



**Dr. Rohit
Srivastava**

Forensic Science Dept.,
College of Life Science,
CHRI Campus, Gwalior



R Aparna

Jain
(Deemed-to-be University),
Bengaluru

JURY MEMBERS FOR ePOSTER PRESENTATION



**Dr. Shweta
Sharma**

Rashtriya Raksha
University, Gujrat



**Pallavi Mallik
Chopra**

Forensic Science
Laboratory, Mohali



R.S. Sathish Kumar

Sub-inspector of Police,
Fingerprint Expert,
Andhra Pradesh



Varsha Singh

Centurion University,
Odisha



Advisory Board



Dr. HARSH SHARMA
State Forensic Science
Laboratory, M.P.



JOHN PAUL OSBORN
Forensic Document Examiner
Osborn & Son, USA



Dr. EDDY De VALCK
Academy of Forensic Medical
Sciences, Belgium



Dr. ROBERT GREEN
University Reader
University of Kent, UK



MICHAEL WAKSHULL
Forensic Document
Examiner Q9 Consulting, Inc.



Prof. EMILIO NUZZOLESE
University of Turin,
Italy



MICHAEL W. STREED
Forensic Facial Imaging Expert,
SketchCop, USA



Dr. RAJINDER SINGH
Former Director, CFSL, CBI
New Delhi



Dr. SANJEEV
Central Forensic Science
Laboratory, Chandigarh



MOHINDER SINGH
Former Government Examiner
of Questioned Documents



Dr. RAKESH GOREA
Gian Sagar Medical College,
Patiala



Dr. G. K. GOSWAMY, IPS
Inspector General of Police,
Chief of ATS, Uttar Pradesh



HEIDI H. HARRALSON
Board Certified Document
Examiner Spectrum Forensic
International LLC. USA



D. C. SAGAR, IPS
ADGP (PTRI) Bhopal,
M.P.



K. V. RAVIKUMAR
I/c Pro-Vice-Chancellor,
Rashtriya Raksha University Former
Dy. DIRECTOR at CFSL, DFSS, MHA



Dr. EVI UNTORO
Forensic Pathologist
Indonesia



DEEPAK HANDA
Former HOD & Principal
Scientific Officer CFSL CBI,
MHA, New Delhi



DEEPA VERMA
Forensic Science Laboratory
NCT of Delhi



Dr. RAJESH VERMA
Regional Forensic Science
Laboratory, Mandi, H.P.



JOHN PATRICK MOLONEY
Director and Co-Founder of
Forensic Comparison Software,
Australia



Advisory Board



Dr. DANILO L. MAGTANONG
Dean, College of Dentistry,
Philippines



Dr. G. S. SODHI
S.G.T.B. Khalsa College,
Delhi



Dr. SELINA LEOW
NSW Forensic Odontology Unit,
Australia



RAJ SRIVASTAVA
Forensic Science Laboratory
Sagar



CLOYD STEIGER
Author,
Criminal Justice



Dr. RAJU TANDAN
B. T. Institute of Excellence,
Sagar



Dr. KAVITA SHARMA
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore



HEMANTA KUMAR PANDA
Retd. Fingerprint Expert,
Bhubaneswar, Odisha



Dr. AJAY SHARMA
State Forensic Science Laboratory,
Rajasthan



Dr. R. K. GUPTA
State Forensic Science Laboratory,
Raipur



Dr. GAGANDEEP SINGH
CRC Press, Taylor & Francis Group
Patiala



Dr. MOHAMMED NASIMUL ISLAM
Forensic Pathologist, Malaysia



KEVIN M. SULLIVAN
Author, USA



Dr. SHALINI GUPTA
King George's Medical University
Lucknow



Al-SHARIF HASHEM MOGAHED
A Corresponding Member of the ASQDE & ASFDE,
Forensic Document Examiner
Forensic Medicine Authority, Ministry of Justice
Egypt



MARIA CORAZON De UNGRIA
University of Philippines,
Diliman



SHANE TURNIDGE
Fingerprint Expert,
Canada



TERRI ARMENTA
Forensic Science Academy
USA

Organising Committee



Convener in Chief
Dr. RANJEET Kr. SINGH
President
International Association
of Scientists & Researchers



Convener in Chief
PHANEENDAR B. N.
Chairman
Clue4 Evidence Foundation



Convener
Mahesh Sharma
SIFS India



Convener
Sheza Azeen
SIFS India



Convener
Afreen Tarannum
SIFS India



Convener
Vaishnavi Thakre
SIFS India



Convener
Kratika Mishra
SIFS India



Convener
Arti Varshney
SIFS India



Convener
Saumya Solanki
SIFS India



Convener
Preeti Kiran
SIFS India



Treasurer
Thomas T.O.
SIFS India



Organising Secretary
Madhuri Vagal



Organising Secretary
**Dr. Pooja
Chakraborty**



Organising Secretary
Prerna Patel



Organising Secretary
Ruchika Dwivedi



Organising Secretary
Taniya Jaiswal



Organising Secretary
Priya Singh



Organising Secretary
Sudhakar Yadav



Organising Secretary
Falak Khan



Organising Secretary
Pallavi Mohanty



Organising Secretary
Aditi



Organising Secretary
Sheetal

Core Committee



Dr. ANKIT SRIVASTAVA
Dr. A.P.J. Abdul Kalam Institute of
Forensic Science & Criminology,
Bundelkhand University, Jhansi



Dr. RITESH SHUKLA
Ahmedabad University,
Gujarat



Dr. SUMIT CHOUDHARY
Rashtriya Raksha University,
Gujarat



Dr. HEMLATA PANDEY
Seth GS Medical College and KEM
Hospital, Mumbai, India



Dr. ASHISH BADIYE
Government Institute of Forensic
Science, Nagpur



MA TERESA G. de GUZMAN
University of the Philippines,
Manila



Dr. RICHA ROHATGI
Amity University
Gurugram



Dr. NEETI KAPOOR
Government Institute of Forensic
Science, Nagpur



NITIN PANDEY
Consultant Cyber, Police Headquarters,
Lucknow



**Dr. KANCHANA
KOHOMBANGE**
International Hand Analyzing
Consultancy, Sri Lanka



RAMANDEEP SINGH
Evolve Security, USA



HANSI BANSAL
Government Institute of Forensic
Science, Nagpur

Scientific Committee



**Prof. MUKESH
Kr. THAKAR**

Department of Forensic
Science, Punjabi University
Patiala



ARVIND SUD

Senior Forensic Expert,
Hoshiarpur



**BULENT
AYDOGMUS**

Sahtecilik&Grafoloji Uzmani,
Turkey



Dr. S. K. PAL

State Forensic Science
Laboratory, Shimla



**Prof. GYANESHWAR
CHAUBEY**

Banaras Hindu University,
Varanasi



TIFFANY ANN ROY

Forensic Aid, LLC
USA



**ANDREW
REITNAUER**

Delta Forensics, USA



**DR. DENISE
GEMMELLARO**

Kean University,
New Jersey



**Dr. ANNA
BARBARO**

Forensic Geneticist,
Italy



**Dr. NARESH
KUMAR**

Forensic Science
Laboratory, Delhi



Dr. VIJAY ARORA

Dr. R.P. Govt. Medical
College, Kangra at Tanda



**Dr. JAYASANKAR
P. PILLAI**

Govt. Dental College and
Hospital, Ahmedabad



VIJAY VERMA

CFSL, CBI,
New Delhi



**Dr. MUKESH
SHARMA**

State Forensic Science
Laboratory, Jaipur



Dr. INDERJIT SINGH

Senior Forensic Expert,
Patiala



VIJAY RUSTAGI

Senior Forensic Expert,
Gurugram

Scientific Committee



**Dr. AKHILESH
PATHAK**

AIIMS,
Bathinda



**Dr. NEERAJ
TANEJA**

Mobico Comodo Pvt. Ltd.
Gurugram



Prof. KOMAL SAINI

Department of Forensic
Science, Punjabi University
Patiala



**Dr. HIRAK
RANJAN DASH**

Forensic Science
Laboratory, Bhopal



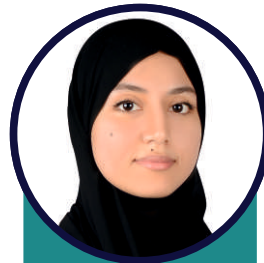
Dr. KHALID KHALID

Nile University,
Sudan



**Dr. ADEMIR
FRANCO**

Dundee University,
United Kingdom



**HANAN AHMAD
ALMULLA**

Dubai Police
GHQ, Dubai



Dr. POOJA PURI

Amity University
Noida



**Dr. VIVEK
SAHAJPAL**

State Forensic Science
Laboratory, Shimla



Dr. ANU SINGLA

Dr. A.P.J. Abdul Kalam Institute
of Forensic Science & Criminology,
Bundelkhand University,
Jhansi



Dr. RAKHI KHANNA

State Forensic Science
Laboratory, Jaipur



Dr. ILA GAUTAM

Forensic Science
Laboratory, Sagar



DR. KRITI NIGAM

Dr. A.P.J. Abdul Kalam Institute
of Forensic Science & Criminology
Bundelkhand University,
Jhansi



Dr. JASSY ANAND

Forensic Questioned
Document Examiner,
Chandigarh



**NEERAJ KUMAR
VARSHNEY**

Forensic Science
Laboratory, Patna



**E. SAI PRASAD
CHUNDURU**

Central Forensic
Science Laboratory,
Hyderabad

Scientific Committee



A. K. PANDEY

Forensic Science Laboratory,
Uttar Pradesh



V B KASHYAP

Fingerprint Expert,
Haryana



ABY JOSEPH

Amity University,
Dubai



Dr. NIRAJ RAI

Ancient DNA Lab
Birbal Sahni Institute
of Palaeosciences, Lucknow



**MOHAMMED
AI SUWAIDI**

Fingerprint Expert,
Dubai Police



**PUDJI
HARDJANTO** S.H., M.Si.

INAFIS: Satreskrim Polrestabes
Surabaya
INAFIS: Police Crime Unit
Indonesia



VIJAY Kr. YADAV

Dr. A.P.J. Abdul Kalam Institute
of Forensic Science & Criminology,
Bundelkhand University,
Jhansi



Dr. PREETI SINGH

National Post Graduate
Autonomous College,
Lucknow



**Dr. JAHANGIR
IMAM**

Directorate of Forensic
Science Services, Ranchi



**MEBIN WILSON
THOMAS**

JAIN
(Deemed-to- be University)
Bengaluru



**Dr. PRAGNESH
PARMAR**

AIIMS,
Bibinagar



**Dr. KALPESH
SOLANKI**

Rashtriya Raksha
University, Gujrat



SEEMA PATEL

Forensic Science
Laboratory, Patna



Dr. SUNEET KUMAR

Galgotias University,
Gr. Noida



**ABHISHEK
VASHISTH**

Forensic & Handwriting
Expert, Dehradun



**Dr. MADHUSUDAN
ASTEKAR**

Institute of Dental
Sciences, Bareilly

Scientific Committee



Dr. J. AUGUSTINE

Maulana Azad Institute
of Dental Sciences,
New Delhi



**Dr. TREVILLE
PERIERA**

DY Patil University School
of Dentistry, Navi Mumbai



**Dr. DEEPIKA
BABLANI POPLI**

Jamia Millia Islamia,
New Delhi



R APARNA

Jain
(Deemed-to-be University),
Bengaluru



**Dr. ROHIT
SRIVASTAVA**

Forensic Science Dept.,
College of Life Science,
CHRI Campus, Gwalior



**PALLAVI MALLIK
CHOPRA**

Forensic Science
Laboratory, Mohali



**Dr. CRISTIANA P.
PEREIRA**

University of Lisbon,
Portugal



**Dr. GUNVANTI
RATHOD**

AIIMS,
Bibinagar



**Dr. KRITHIKA
RAJESH**

Forensic Science
Laboratory, Ahmedabad



Dr. ALI RAZA

Arba Minch University,
Ethiopia



**Dr. KAMLESH
KAITHOLIA**

Forensic Science
Laboratory, Sagar



**Dr. JAGADISH
P. RAJGURU**

Hi-Tech Dental College &
Hospital, Bhubaneswar



Dr. UTSAV PAREKH

P S Medical College
Gujarat



Dr. SWAPNIL GUPTA

Central Forensic
Science Laboratory, DFSS
Kamrup



**Dr. VAIBHAV
SARAN**

SHUATS, Prayagraj



**Dr. IVANA
ČUKOVIĆ-BAGIĆ**

School of Dental Medicine
University of Zagreb, Croatia

Scientific Committee



**Dr. NADEEM
MUBARIK**

Forensic Science
Laboratory, Srinagar



**Dr. YMELDA WENDY
VELEZMORA MONTES**

SPOLFOC, Peru



**Dr. PRASHANT
AGRAWAL**

College of Traffic
Management, IRTE,
Faridabad (MDU Affiliated)



Dr. KAPIL KUMAR

Department of Forensic
Science, Gujarat University,
Gujarat



**Dr. MANAVPREET
KAUR**

Wikimedia Foundation
Punjab



**Dr. NEEHARIKA
SRIVASTAVA**

G D Goenka University,
Haryana



Dr. M. K. SUNIL

TMU, Moradabad



Dr. NEETA SHARMA

H.P. Government Dental
College & Hospital
Shimla(H.P.)



**Dr. PARUL
KHARE SINHA**

Alpha Dental Clinic,
Shanghai, China



**Dr. MAYURA
RAVIRAJ MAHAJAN**

DY Patil University School
of Dentistry, Navi Mumbai,



**Dr. FRENY
KARJODKAR**

Nair Hospital Dental
College, Maharashtra



**PRASHANT
SHARMA**

Central Forensic Science
Laboratory, CBI,
New Delhi



VINNY SHARMA

Galgotias University,
Greater Noida



**MAYANK KR.
DUBEY**

Mody University,
Rajasthan



ZADIA-KAY SMITH

Jamaica Constabulary
Force, Jamaica



HEENA GOSWAMI

Gujarat National
Law University,
Gandhinagar

Scientific Committee



**Dr. ABIRAMI
ARTHANARI**

Saveetha Dental College
& Hospital, Tamil Nadu



**Dr. KARPAGAVALLI
SHANMUGASUNDARAM**

Seema Dental College &
Hospital, Rishikesh



**Dr. UTTARA
DESHPANDE**

DentoUpanishad Dental
Clinic & Implant Center,
Pune



Dr. RAJEEV KUMAR

Galgotias University,
Greater Noida



**Dr. VIJAY R.
CHOUREY**

Government Holkar
(Model Autonomous)
Science College, Indore



**Dr. ASHUTOSH
TRIPATHI**

SAGE Institute of Sciences,
SAGE University, Indore



**Dr. BHOOPESH Kr.
SHARMA**

SGT University,
Gurugram



**Dr. SUDHEER
B. BALLA**

Panineeeya Institute of
Dental Sciences &
Research Centre



**Dr. SUDEENDRA
PRABHU**

Yenepoya Dental
College, Mangalore



Dr. ARUSHI CHAWLA

Parul University, Gujarat



**Dr. AMAN
CHOWDHRY**

Jamia Millia Islamia,
New Delhi



Dr. KUSUM SINGAL

AIIMS, New Delhi



SUBHASISH SAHOO

Forensic Science
Laboratory, Bhubaneswar



VICHAR MISHRA

Jain
(Deemed-to-be-University),
Bengaluru



**Dr. RUCHI
SHARMA**

Forensic Science
Laboratory, Rohini, Delhi



R.S. SATISH KUMAR

Sub-inspector of Police,
Fingerprint Expert,
Andhra Pradesh

Scientific Committee



Dr. VISHAL SHARMA

Institute of Forensic Science & Criminology (IFSC), Panjab University, Chandigarh



Dr. PRIYANKA SINGH

Amity Institute of Forensic Sciences, Amity University, Noida



Dr. MALVIKA MEHTA

National Centre for Handwriting Studies, Pune



Dr. AMARNATH MISHRA

Amity University, Noida



Dr. SWATI DUBEY MISHRA

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore



Dr. SHIVANI BANSAL

Nair Hospital Dental College, Maharashtra



Dr. PRIYANKA KAPOOR

Jamia Millia Islamia, New Delhi



Dr. WASSIM MOHAMMAD RIHAWI

Syrian Forensic Dental Association, Syria



Dr. MONICA MEHENDIRATTA

ITS Dental College, Hospital & Research Centre, Gr.Noida



Dr. ANUREKHA YADAV

Forensic Science Laboratory, M.P.



Dr. SANDHYA TAMGADGE

DY Patil University School of Dentistry, Navi Mumbai,



Dr. AMBREEN KAUR

Luxmi Bai Dental College, Patiala



Dr. JASKARAN SINGH

Allied Health Sciences, Sharda University, Gr. Noida



Dr. SHWETA SHARMA

Rashtriya Raksha University, Gujarat



SUCHISMEETA BEHERA

Forensic Science Laboratory, Odisha



VARSHA SINGH

Centurion University, Odisha



MADHURI VAGAL

SIFS INDIA Mumbai



GEORGE DIXON

Forensic Science Laboratory, Jamaica



JIN LEE

Independent Lawyer, Delhi



ROHIT JAIN

Advocate High Court, Indore



Call for Paper

GUIDELINES FOR STUDENT & PROFESSIONAL CATEGORY

Submission of Paper

- ◆ The paper should be **ORIGINAL** and **UNPUBLISHED** offering new insights, a new approach, or new knowledge to the body of literature.
- ◆ The abstract should be of a **maximum of 350 words** followed by a **minimum of 5 keywords** in the format given.
- ◆ All participants should email their respective abstracts before the mentioned deadline, **15th April 2021** at iasrforensicconference@gmail.com.

Criteria for Evaluation

- ◆ The evaluation depends upon the presentation skills, content, topic relevancy, and answers given to the jury.
- ◆ All abstracts submitted would be published in the **SOUVENIR of IASR**.
- ◆ The outstanding papers would be published in the **Academic Journal of Forensic Science, IASR** providing FREE SCHOLARSHIP.

Presentation of Paper

- ◆ The paper has to be presented in PowerPoint 2013/2010 or earlier in 16:9 ratio slides.
- ◆ A maximum of **10 slides** is allowed to present. The time limit for the presentation will be **8 minutes** followed by a **2-minutes** discussion with video 'ON'.
- ◆ The presentation should include an introduction, material, and methodology, information regarding collected data, major findings, conclusion, etc.
- ◆ In the case of multiple authors, only one author out of the two would be allowed to present the ePoster. All Co-authors would receive the participation eCertificate as co-authors.

Format of Paper: The manuscript should follow the format:

- ◆ Title of the paper, Name, Position with Institute name, Contact no. and Email Address.
- ◆ Approximately **300 words of abstract** followed by a **minimum of 5 keywords** along with the final paper.
- ◆ The paper should follow the font Times New Roman size 12 (Justify alignment) and heading size 14 (aligned centrally) in MS-Word Format.
- ◆ All references should follow the MLA (8th edition) style. All tables and figures should be appropriately numbered.

Awards for Best Scientific Paper

The winners in both **STUDENT** and **PROFESSIONAL** category will receive:

Three outstanding Paper would receive an **eCertificate of Excellence**
in each Category

STUDENT

PROFESSIONAL



Call for ePoster

GUIDELINES FOR STUDENT & PROFESSIONAL CATEGORY

Submission of ePoster

- ◆ The ePoster should include completed or ongoing scientific research, proposing innovative ideas, interesting case study, etc.
- ◆ The abstract should be a **maximum of 350 words** followed by a **minimum of 5 keywords** in the format given.
- ◆ All participants should email their respective abstracts (approximate 350 words) and ePoster at **iasrforensicconference@gmail.com** before the mentioned deadline, **15th April 2021**.

Criteria for Evaluation

- ◆ The evaluation depends upon the presentation skills, content, topic relevancy, and answers given to the jury.
- ◆ All abstracts submitted would be published in the **SOUVENIR of IASR**.

Presentation of ePoster

- ◆ The ePoster has to be presented in the PowerPoint 2013/2010 or earlier in 16:9 ratio slides.
- ◆ The ePoster has to be made on a single (**ONE**) slide having information such as introduction, method and methodology, results, and conclusion.
- ◆ The time limit allotted for the presentation will be **5 minutes** followed by a **2-minutes discussion** with video 'ON'.
- ◆ In the case of multiple authors, only one author out of the two would be allowed to present the ePoster. All Co-authors would receive the participation eCertificate as co-authors.
- ◆ Only the main Presenter would receive the Winning eCertificate of Achievement.
- ◆ The best ePoster in the two different categories (Student and Professional) will be duly acknowledged.



Awards for Best Scientific ePoster

The winners in both **STUDENT** and **PROFESSIONAL** category will receive:
Three outstanding ePosters would receive an **eCertificate of Excellence** in each Category

STUDENT

PROFESSIONAL



TABLE OF CONTENT

Paper Category

Paper Code	Author and Co-authors	Title
PA 01	Prof. T. Nataraja Moorthy G. Povaneswari	Mother Has Affection Towards Her Children. But More Affection Towards... Son Or Daughter? – A Pilot “Inheritance Of Fingerprint Pattern” Study On Malaysian Indian Families
PA 02	Dr. Kamini H. Solanki Prof. Abhishek Rajeshkumar Mehta	Practical Approach For Fingerprint Recognition By Combining Local Binary Pattern And Principal Component Analysis
PA 03	Vikas Kumar	Difficulties During Recording Of Fingerprint For Immigration Process
PA 04	Poonam Moon Dr. Ashish Badiye Dr. Neeti Kapoor	Use Of Nanoparticles For The Development Of Latent Fingerprints
PA 05	Nazla Khalid	Review On Sex Determination From Fingerprints
PA 06	Ishika Shukla	Biometrics In Forensic Identification
PA 07	Abhinandan Kanjekar Kaushik P M Prashanth Kumar H P	Physical Developer Method For Detection Of Latent Fingerprints





4th INTERNATIONAL eCONFERENCE-2021

ePoster Category

ePOSTER Code	Author and Co-authors	Title
EP 01	Dr. Revathi Rajan Sofia Haniza Md Zabit Vanitha Devaraja	Organic Food Waste To Fingerprint Powder: Forensic Goes Green
EP 02	Dr.Yadukul.S Dr.Praghesh Parmar Dr.Prashanth Mada Dr.Divya Reddy P	Use Of Fingerprint Biometric In Workplace During COVID Times: A Critical Viewpoint
EP 03	Arti Varshney Garima Sagar Sakshi Bisht	Finger Knuckle Characteristics: A Promising Biomterics
EP 04	Surajnarayansingh D. Kushwaha Dr. Ashish Badiye Dr. Neeti Kapoor	Laser Technique For Latent Fingermark Development
EP 05	Anirudhvaibhav Gupta	Cloning Of A Fingerprint
EP 06	Meenal Goswami	IR- LASER Ablation Technique: A Method Of Analysing Fingerprints
EP 07	Neelkamal Ganesh Battu	Contactless Fingerprint System
EP 08	Heenaba Jadeja Dr. Rajesh Babu	Comprehensive Dermatoglyphics Study On Ridge Dimensions, Pore Size And Assessment Of The Sweat Composition Among The Industrial Workers
EP 09	Anjali Tamgadge	Fingerprints From Deceased
EP 10	Sukriti Ghanash Pushkar Yadav	Reliability Of Unconventional Methods Of Developing Fingerprint



Paper Category

MOTHER HAS AFFECTION TOWARDS HER CHILDREN. BUT MORE AFFECTION TOWARDS..... SON OR DAUGHTER? – A PILOT STUDY ON “INHERITANCE OF FINGERPRINT PATTERN” AMONG MALAYSIAN INDIAN FAMILIES

Prof. T. Nataraja Moorthy¹

¹Professor of Forensic Sciences, Faculty of Health and Life Sciences, Management and Science University, Shah Alam, Selangor, Malaysia,

Abstract

Fingerprint identification is one of the most well-known and publicized biometrics. It is globally used to identify both life and dead. Because of their uniqueness and consistency over time, fingerprints have been used for identification for over a century, more recently becoming automated (i.e. a biometric) due to advancements in computing capabilities. A fingerprint usually appears as a series of dark lines that represent the high, peaking portion of the friction ridge skin, while the valley between these ridges appears as white space and are the low, shallow portion of the friction ridge skin. The most widely used recognition technique, minutiae-based matching, relies on the minutiae points, specifically the location and direction of each point. 53 Malaysian Indian families who accepted for sample donation. A family consists of a father, a mother, and two children. Following the standard procedure, fingerprints were collected and statistically analyzed the inheritance of fingerprint patterns. The result showed that the inheritance of fingerprint pattern frequency from mother to son is the highest (82.7%), followed by father to daughter (79.6%), father to son (71.2%), and the least mother to daughter (70.4%), and considered “affection”. Thus, this pilot investigation concluded with a finding that inheritance of fingerprint pattern and affection shows a statistical relationship among Malaysia Indian family members. The mother has comparatively more affection towards her son, while the father has more affection towards his daughter. My observation confirms this fact since I have been in close and friendly relationship with many Indian families in Malaysia, for about two decades.

Keywords: fingerprints, frequency, friction ridge analysis, sample donation, inheritance





PRACTICAL APPROACH FOR FINGERPRINT RECOGNITION BY COMBINING LOCAL BINARY PATTERN AND PRINCIPAL COMPONENT ANALYSIS

Dr. Kamini H. Solanki¹, Prof. Abhishek Mehta²

¹Associate Professor, Parul Institute of Computer Application, Parul University

²Assistant Professor, Parul Institute of Computer Application, Parul University

Abstract

Fingerprint is used for real time application now days. So reliability is the more important thing for security. Fingerprint is rapidly becoming area of interest in computer science field. In this paper, fingerprint recognition is done using combination of local binary pattern and principal component analysis for better recognition result. The feature extraction is an essential step for image analysis, object representation, visualization, and many other image-processing tasks. PCA is used for dimension reduction. LBP is used to measure the expression of Fingerprint. Hybrid approach will increase the recognition rate (RR) of Fingerprint and decreased verification time and false match rate. So it is most suitable for real time application. We compared proposed method with both PCA and LBP to compute these changes that increased Fingerprint recognition rate and decreased recognition time and false match rate.

Keywords: Fingerprint image representation; LBP; PCA; Recognition rate, False match rate





DIFFICULTIES FACED DURING RECORDING FINGERPRINT FOR IMMIGRATION

Vikas Kumar¹

¹Sherlock Institute of Forensic Science, New Delhi

Abstract

Fingerprints are inborn and difficult to alter in any way. In the modern era, where the fingerprint is commonly used by people for individuality. Fingerprinting for the immigration process is a complex activity that requires highly qualified fingerprint experts. Fingerprint has been commonly used as a reliable source of individual identification in criminal investigations for many years, and as a result, they have a special place in the world of forensic science. It has been referred to as the most important proof since a long time ago. This paper deals with the various challenges and difficulties that an examiner faces taking fingerprints. There are lots of difficulties like incorrect finger placement, dry finger, light prints, dark images from wet or perspiring fingers, degraded or worn ridges structure, etc. This review paper deals with the difficulties faced during fingerprinting in the immigration process.

Keywords: Immigration, PCC, fingerprint, forensic science, identification, clearance





USE OF NANOPARTICLES FOR THE DEVELOPMENT OF LATENT FINGERPRINTS

Poonam Moon¹, Ashish Badiye², Neeti Kapoor²

¹Dept. of Forensic Science, G. H. Rasoni University Amravati, Maharashtra

²Dept. of Forensic Science, Govt. Institute of Forensic Science, Nagpur, Maharashtra

Abstract

The advances in nanoparticles have vast applications in the field of Forensic Science such as in security documents, paints, examination of inks, chemicals & toxins, DNA analysis, Lab-on-chip, among others. They have also proved to be useful for the development of latent fingerprints. Distinct ridge details can be obtained by applying different nanoparticles such as gold, silver, silicon dioxide, zinc oxide, aluminum oxide, etc. Latent Fingerprint evidence is one of the important pieces of evidences found in many crimes. The use of new and better techniques may enable the development of fingerprints even on seemingly difficult substrates. This review focuses on different nanoparticles and their applications in the development of latent fingerprints.

Keywords: Nanoparticles, Latent Fingerprints, Ridge Details, Porous Surface, Nano-Forensics





REVIEW ON SEX DETERMINATION FROM FINGERPRINTS

Nazla Khalid¹

¹M.Sc. Forensic Science, Department of Anthropology, Delhi University

Abstract

Fingerprints are unique characteristics which help to establish the identity of an individual. No two fingerprints are alike thus useful technique for individualization. Fingerprints are the most commonly encountered trace evidence from a crime scene and can be latent, patent and plastic in nature. Dermatoglyphics is the scientific study of ridge patterns of the skin. The study of dermatoglyphics involves either qualitative or quantitative. Qualitative dermatoglyphics focuses on, patterns of fingerprints and types of minutiae; while, ridge count and finger ridge density (RD) are examples of the finger-prints quantitative study. Epidermal ridge density can be determined by two parameters such as (1) ridge width and (2) distance between ridges. The thickness of the epidermal ridges varies between individuals, generally women have finer ridges than men and, therefore, greater ridge density within a given unit of space. The ridge densities were calculated using Bayer's equation. Researches have conducted the studies among Caucasian–American, Spanish, African–American, Southern Indian and Central Indian populations and similar trend of women tend to have higher ridge density compared to male. The studies show that ridge density will help the investigators to identify the gender of the perpetrators and thereby narrow down the possible suspects.

Keywords: fingerprints, dermatoglyphics, ridge density, sex determination, personal identification, ridge width





BIOMETRICS IN FORENSIC IDENTIFICATION

Ishika Shukla¹

¹BSc (2nd year) (2019-2022), Government Institute of Forensic Science , Nagpur

Abstract

Accurate and efficient identification have become a vital requirement for forensic application due to diversities of criminal activities. A recent advancement in biometric technology, which is equipped with computational intelligence techniques, is replacing manual identification approaches in forensic science. Biometrics is a fundamental verification mechanism that identifies individuals based on their physiological and behavioral features. These biometric expansions are easily observable in different forensic identification areas, e.g. face, fingerprint, iris, voice, handwriting, etc. Forensic Biometrics also overcomes the loopholes of traditional identification system that were based on personal probabilities. It is considered as a fundamental shift in the way criminals are detected. Biometrics is one of the most fascinating ways to solve the crime. It is an automated way to establish the identity of a person because of his or her physical (fingerprint, face, hand/finger geometry, iris, retina, ear, etc.) and behavioural characteristics (signature, voice, gait, odor, etc.). A biometric system is a pattern recognition device that acquires physical or behavioural data from an individual, extracts a salient feature set from the data, compares this feature set against the features set stored in the database and provides the result of the comparison. Accurate and reliable identification is an important issue in crime detection. The biometric recognition is emerging as a sound scientific justifiable tool in investigative procedure. It holds the potential to solve the criminal activities. Advances in biometric technology mean that biometrics will have a more marked impact in crime detection in coming future. However many improvements in the recognition systems can be expected if recent findings in applied mathematics, statistics and computer sciences are implemented in biometric science.

Keywords: biometrics, fingerprint, identification, physical characteristics, behavioural characteristics





PHYSICAL DEVELOPER METHOD FOR DETECTION OF LATENT FINGERPRINTS

Abhinandan Kanjekar¹, Kaushik P M¹ and Prashanth Kumar H P²

¹6th Semester BT, Department of Biotechnology, Sapthagiri College of Engineering, Bengaluru,
Karnataka-560057

²Assistant Professor, Department of Biotechnology, Sapthagiri College of Engineering, Bengaluru,
Karnataka-560057

Abstract

A new technique to detect latent fingerprints on dry and wet, porous items including paper articles, rubber gloves, nylon clothing and clay-based products for enhancing the identification. A solution containing iron salt reduces aqueous silver nitrate to finely divided metallic silver coupled with oxido-reduction process is the basis of mechanism. This process is like a photographic physical developer which, during processing of film rolls, undergoes a similar redox reaction, thus deriving its name from it. Dark gray or black images reveal the fingerprint due to the adsorption of metallic silver particles on the fatty acid and lipid components of sweat residue.

Keywords: latent fingerprints, Iron salt solution, oxido-reduction, metallic silver, photographic image





ePoster Category

ORGANIC FOOD WASTE TO FINGERPRINT POWDER: FORENSIC GOES GREEN

Revathi Rajan¹ Sofia Haniza Md Zabit² Vanitha Devaraja²

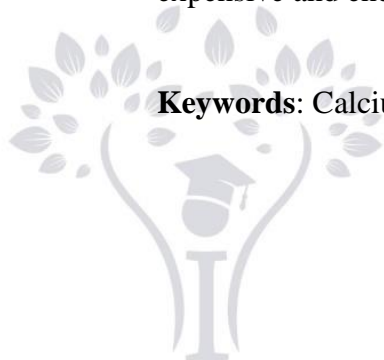
¹Faculty of Applied Sciences, UCSI University, Jalan Puncak Menara Gading 1, 56000 Cheras, Kuala Lumpur, Malaysia

²Faculty of Health and Life Sciences, Management and Science University, 40100 Shah Alam, Selangor, Malaysia

Abstract

Powder dusting technique is the most versatile latent fingermark development method, which can be enhanced through nanotechnology. The primary aim of this research was to synthesis nanoparticle based high-definition fingerprint developing powder from agriculture waste. Eggshells produced from local food outlets were subjected to stepwise thermal treatments, carbonization and calcination at 80°C (2 hours) and 900°C (3 hours), respectively. The efficiency of the powder for latent fingermark development was tested in two phases; multiple surface and multiple donor studies. The first phase tested the efficiency of powder in comparison to the commercial white powder (SIRCHIE), across varied non-porous surfaces followed by the second phase carried out using 150 random fingermark donors. The fingermark was graded based on the clarity of the ridges and scores were subjected to data analysis. Fine white calcium oxide powder was produced from the thermal treatment. Upon application on latent fingermarks, the synthesized powder exhibited high selectivity and sensitivity to fingermark residue resulting in the formation of clear ridge details. Independent t-test analysis of fingermark grades in Phase 1 ($t_{\text{plastic}} = -2.366$, p-value = 0.031; $t_{\text{metal}} = -0.849$, p-value = 0.409; $t_{\text{glass}} = -0.918$, p-value = 0.372) revealed significant difference in development on plastic surface alone attributed to the adhesive property of the SIRCHIE. Meanwhile, phase 2 data ($t_{\text{male}} = -3.809$, p-value <0.001; $t_{\text{female}} = -3.145$, p-value = 0.002) showed that there were significant improvement in the clarity and contrast of the fingermarks developed using calcium oxide powder. Findings of this research may contribute to increase fingermark recovery in the crime scenes, as well as provide a safer and cost-effective alternative to the commercial white powder that contains titanium oxide pigment that are expensive and energy intensive production.

Keywords: Calcium oxide, nanoparticle, fingermarks, eggshells, organic food waste





USE OF FINGERPRINT BIOMETRIC IN WORKPLACE DURING COVID TIMES: A CRITICAL VIEWPOINT

Dr.Yadukul. S¹, Dr.Pragnesh Parmar², Dr.Prashanth Mada³, Dr.Divya Reddy P⁴

¹Associate Professor, ²Additional Professor, ³Assistant Professor, ⁴Senior Resident
AIIMS (All India Institute of Medical Sciences), Bibinagar, Hyderabad

Abstract

Biometrics is referred as biometric recognition due to the fact that a person can be automatically identified based on his/her physiological characteristics. Biometric systems have been widely used before the inception of computer in human activities. These systems make use of the physical or biological traits of human beings for recognition and authentication purposes. Most common biological traits or characteristics used are fingerprints, iris and face. Before the COVID-19 pandemic period, most of the Schools, Colleges, IT companies, Government & Private Offices had fingerprint biometric system to collect attendance of their Students/Employees. Fingerprint recognition is a secure and convenient technology that has become common and widespread, not only in smart phones, but in our everyday lives as well. However, the recent global outbreak of COVID-19 is raising questions about how safe using fingerprint authentication really is, as touching the sensors can potentially spread viruses. Our everyday lives are surrounded by many different types of surfaces that come in contact with countless people. These surfaces include the poles in buses and trains, elevators, ATMs, buttons on copy machines, door handles, handrails, tables, credit cards and money, to list but a few. In the wake of the COVID-19 outbreak, numerous news articles have claimed that there is a risk of infection via these commonly touched surfaces. In this poster, we will look into the different guidelines issued by the authorities related to the fingerprint biometrics & also explore the other alternatives that we have in the present day, to overcome the same in this COVID-19 period.

Keywords: Biometric; Fingerprint; COVID.





FINGER KNUCKLE CHARACTERISTICS: A PROMISING BIOMETRICS

Arti Varshney¹, Garima Sagar², Sakshi Bisht³

¹Sherlock Institute of Forensic Science, India

²National Institute of Criminology and Forensic Sciences, New Delhi

³Indraprasth University, New Delhi

Abstract

Biometric authentication is a security process that relies on the unique biological characteristics of an individual such as fingerprint, retina scan, iris recognition etc. The basic premise of biometric authentication is that every person can be accurately identified by his or her intrinsic physiological characteristics or behavioral characteristics. Hand biometrics is based on geometric shape of the hand- size of palm, length and width of finger, distance between the knuckles etc. Finger knuckle print (FKP) or the finger knuckle characteristics are the pattern present on the outer surface of fingers i.e., at the finger phalangeal joint, these patterns have more obvious line features than the palm surface. Each individual has unique knuckle-prints. The uniqueness of a knuckle-print is exclusively determined by the local ridge characteristics and their relationships. Automatic knuckle-print matching depends on the comparison of these local ridge characteristics and their relationships to make a personal identification. An important step in knuckle-print matching is to automatically and reliably extract minutiae from the input knuckle-print images. The result of minutiae extraction depends on the quality of the input knuckle-print images. In such situations, the ridges can be easily detected and minutiae can be located from the thinned ridges. The ridge structures in poor-quality knuckle-print images are not always well defined so cannot be correctly detected posing some problems. It has advantages of easy acquisition and high resilience to spoof attacks and has been noticed to identify individual based on pattern.

Keywords: biometric, finger knuckle print, retina scan, fingerprint, minutiae, ridges.





LASER TECHNIQUE FOR LATENT FINGERMARK DEVELOPMENT

Surajnarayansingh D. Kushwaha¹, Neeti Kapoor², Ashish Badiye²

¹G.H.Raisoni University Amravati, Maharashtra

²Government Institute of Forensic Science, Nagpur, Maharashtra

Abstract

Laser technique is often used as a supplement to conventional procedures of latent fingerprint detection. The fluorescence so produced provides intrinsic high sensitivity such that fingerprints may be detected on difficult and unusual substrates. It also enables detection of very old fingerprints. This review focuses on the various aspects of the use of Laser technique for latent fingerprint development.

Keywords: Fingerprint, Laser Detection, Fingerprint, Latent Print, Print and impression.





CLONING OF A FINGERPRINT

¹Anirudhvaibhav Gupta

¹B.Sc. (H) Forensic science second year (Batch 2019-22), Amity University,
Noida Uttar Pradesh

Abstract

Fingerprints are unique patterns, made by friction ridges and furrows, which appear on the pads of the fingers and thumbs. Prints from palms, toes and feet are also unique; however, these are used less often for identification, so it focuses on prints from the fingers and thumbs. Friction ridge patterns are grouped into four distinct types—loops, whorls, arches and composite—each with unique variations, depending on the shape and relationship of the ridges. The aim of the study is to learn about the process of cloning of a fingerprint, its requirements and complications, how to avoid such kind of hacking on personal level and as well as on digital level. In the study, a mold of a finger was created using adhesive hot glue and gelatine leaves or fevicol to make the fingerprint. The limitation of the cloning to create an artificial finger using a mold requires the legitimate user's actual finger. The artificial finger was tested on fingerprint scanners of several mobile phones and laptops as well and the results came out to be positive, but the test rate was not very high until proper mold was made and a good technique to do it was learned. This cloning is quite easily detected by the user whose finger is being copied. A person planning to break into a system using a fingerprint scanner should have a very credible story to convince someone to stick his or her finger in hot glue. The cloning works best when the adhesive solution is thick enough and least number of bubbles in the moulded finger and use of more than one mold to create a different finger.

Keyword: Fingerprints, cloning, gelatin, fevicol, moulded finger





IR- LASER ABLATION TECHNIQUE: A METHOD OF ANALYSING FINGERPRINTS

Meenal Goswami¹

¹MBA Forensic Accounting, National Forensic Sciences University , Gandhinagar

Abstract

Fingerprints left behind at the crime scene can be developed by using various conventional and advanced techniques, but they do not reveal the information related to the chemical components present on their surface. A team of Chemists at Louisiana State University L.A USA. Developed a new technique to identify these components with the help of laser ablation. It is the method for mass spectrometry, which combines laser ablation with infrared ray which can be used on the surface with different porosity such as glass, plastic, cardboard, aluminium. Laser can remove complete material from the substrate (initially enhanced with powders , usually black powder) by heating it through targeting a beam of ray at particular spot, integrated with vacuum capture with syringe filters and then analyse the vacuumed material with spectrometric methods to determine the mass of the compound(s) present. Hence revealing the activity of the person involved. In their study chemists worked on analysis of caffeine, condom lubricants, explosives on the surface of fingerprint with the help of Matrix-Assisted Laser Desorption Ionization (MALDI) imaging. GC-MS has been used to analyse the explosives on the fingerprints.

KEYWORDS: MALDI , Laser Ablation, Infrared, Fingerprints, Spectrometry,





CONTACTLESS FINGERPRINT SYSTEM

Neelkamal Ganesh Battu¹

¹National Forensic Sciences University, Gandhinagar, Gujarat

Abstract

Since early 2020, the COVID-19 pandemic has had a considerable impact on many aspects of daily life. A range of different measures have been implemented worldwide to reduce the rate of new infections and to manage the pressure on national health services. A primary strategy has been to reduce gatherings and the potential for transmission through the prioritisation of remote working and education. Enhanced hand hygiene and the use of facial masks have decreased the spread of pathogens when gatherings are unavoidable. Fingerprint recognition systems are widely used in the field of biometrics. Many existing fingerprint sensors acquire fingerprint images as the user's fingerprint is contacted on a solid flat sensor. Because of this contact, input images from the same finger can be quite different and there are latent fingerprint issues that can lead to forgery and hygienic problems. For these reasons, a touch less fingerprint recognition system has been investigated. This poster strives to throw light to switch over the use of contactless biometric system.

Keywords: COVID, contactless, fingerprint system, ridges, recognition systems.





COMPREHENSIVE DERMATOGLYPHICS STUDY ON RIDGE DIMENSIONS, PORE SIZE AND ASSESSMENT OF THE SWEAT COMPOSITION AMONG THE INDUSTRIAL WORKERS

Heenaba Jadeja¹, Dr. Rajesh Babu¹

¹National Forensic Sciences University, Sector-9, Gandhinagar

Abstract

Every individual has unique fingerprints. The cross section of finger would look like the cross section with ridges and furrows. Ridge morphology and morphometry are anatomical ridge individualization used in identification of victim or criminal in forensic science. The ridges have pores along their entire length that exudes perspiration. The perspiration contains different components depending on the environment, occupation, food intake and habits. Study of the sweat composition can narrow down the search for the identification of an individual. This is a unique approach to study the fingerprints of individuals, which can be important concerning the identity of an individual. The study has been conducted on 20 samples taken from the people working in the pigment industry. In Dinolite analysis, a significant increase in the dimensions of pore size and ridge width of the pigment industrial workers was more than the normal individuals due to the muscular activities. In FTIR analysis for the collected samples, molecules like N=O=C, C-N and C-X are present in the sweat samples of the pigment industry workers which are also present in the dye and absent in the sweat samples of the normal individual. From this we can conclude that the identification of the individuals on the basis of their occupation can be narrowed down.

Key words: fingerprint, sweat composition, pigment industries, workers, occupation





FINGERPRINTS FROM DECEASED

Anjali Tamgadge¹

¹ M.Sc. Forensic Science I Year (Batch 2020-22), Government Institute of Forensic Science
Nagpur, Maharashtra

Abstract

Fingerprints have been proven to be the best evidence for identification and individualization in forensic world. Fingerprints are not something new to humans as it is been in use intentionally or unintentionally since very ancient Babylonian culture. The area of fingerprint has shown a great development in collection, developmental techniques, analysis, classification, individualization and now into the digital world. It has become a process for personal identification in everyday life and with this popularity now, it has become the backbone of every investigation. Fingerprints whether from dead or living is of equal importance, these two only differs in manner of collection of fingerprint. Many a time's collection from dead found to be very cumbersome process depending upon the stage at which the deceased is encountered for collection of fingerprints. Presence of rigor mortis and later decomposition state increases the difficulty of this collection. However variety of procedure is employed for successful collection of fingerprints from deceased and further for their individualization.

Keywords: Fingerprint, Living, Dead, Rigor Mortis, Decomposition, Deceased





RELIABILITY OF UNCONVENTIONAL METHODS OF DEVELOPING FINGERPRINT

Sukriti Ghanash¹, Pushkar Yadav¹

Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj

Abstract

Analysing fingerprints left at the scene of a crime is one of the most critical part of forensic analysis. Fingerprint is an impression left by the friction ridges of a human finger. Light and dark areas of fingerprint pattern are known as ridges and valleys. It is said to be most versatile but fragile evidence found at crime scene. In the present scenario, various types of modus operandi for committing crime have been emerged very high in our society. Although, the modern and advanced technologies have facilitated us for investigation and identification of the suspect. The investigative techniques evolve the traditional and moderate methods for the succession of cases and exist in the tradition of practice. Among of all evidences, the latent prints are most often at crime scene and frequently encountered which takes the most efficacious and effective part in solving the most puzzled cases. Instead of using the traditional methods, if some unconventional methods could be used, which have higher significance in latent prints development and identification; will be a great help in forensic investigation. In this study we have studied some research papers on internet and every research work using unconventional methods for development of fingerprint was successful at a very high rate. For the development of prints present at various surfaces, four unconventional methods (turmeric powder, gram flour, coffee powder, vermilion, Heena, corn flour etc.) were used. The developed prints were clear, identifiable which were having all the information (individual and class characteristics) about an individual to be nabbed. The main purpose of using these unconventional methods are because of their massive advantages which are: easily available, cheap, non-carcinogenic.

Keywords: non-carcinogenic, unconventional, fingerprint, heena, vermilion, traditional methods





In Association with

