DIGITAL & MULTIMEDIA SCIENCES

Thursday

What Happened Last Night?—Audio, Video, and Image Analysis

Moderator: J. Levi White *Co–Moderator: Umit Karbiyik*

8:30 AM – 8:50 AM	**C1**	**A Lossy Compression Analysis of GoPro® Audios Before and After YouTube Laundry** *Stephen Wells, MSc*; Catalin Grigoras, PhD; Gregory Wales, MSc; Cole Whitecotton, MSc*
8:50 AM – 9:10 AM	**C2**	**Can You Accurately Determine Clothing Tones in Infrared Closed-Circuit Television (CCTV) Imagery?** *Cole Whitecotton, MSc; Gretchel Lomboy, MS*; James Zjalic, MSc*
9:10 AM – 9:30 AM	**C3**	**Digital Reality: Light Reflection vs. Gunfire Muzzle Flashes** *Barry Dickey*; Gil Sapir, JD, MSc*
9:30 AM – 9:50 AM	**C4**	**An Investigation of Closed-Circuit Television (CCTV) Footage for the Detection of Facial Features** *Lovepreet Kaur, MSc*; Mukesh Thakar, PhD; Navdeep Goel, PhD*
9:50 AM – 10:00 AM		**BREAK**

It Wasn't Me! I Swear, I Didn't Know!—Identification, Verification, and Age Estimation

Moderator: Patrick Eller *Co–Moderator: Irfan Ahmed*

10:00 AM – 10:25 AM	**C5**	**An Overview of Facial Identification as a Forensic Discipline** *Steven Johnson, BS**
10:25 AM – 10:45 AM	**C6**	**The Application of TPS Software in Ear Print Identification: Matching/Non-Matching of the Ear Photograph and Ear Print** *Deepika Rani, MSc*; Kewal Krishan, PhD*
10:45 AM – 11:05 AM	**C7**	**Exploring Bias in Estimating the Age of Subadults in Images** *Petra Urbanova, PhD**
11:05 AM – 11:25 AM	**C8**	**Multimedia Stream Hashing: A Forensic Method for Content Validation and Verification** *Gregory Wales, MSc*; Jeff Smith, MS*; Douglas Lacey, MS*; Catalin Grigoras, PhD*
11:25 AM – 11:45 AM	**C9**	**Source Camera Identification on Multi-Camera Phones** *Stephanie Reinders, PhD*; Danica Ommen, PhD; Alicia Carriquiry, PhD*
11:45 AM – 1:00 PM		**BREAK**

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No More Secrets—Social Networking and Mobile Device Analysis

Moderator: Alexander Nelson   *Co–Moderator: Gregory Wales*

1:00 PM – 1:20 PM	**C10**	**A Forensic Analysis of Android™-Popular Social Networking Apps**	
		Chen Shi, PhDc*; Yong Guan, PhD	
1:20 PM – 1:40 PM	**C11**	**TikTok From an Open-Source Intelligence (OSINT) Perspective: Lessons Learned**	
		Marcus Rogers, PhD*; Nina Matulis, BS	
1:40 PM – 2:05 PM	**C12**	**The Analysis of Sysdiagnose in iOS® 15 to Identify the Sending Phone Number of Airdrop Data**	
		Brandon Epstein, MS*; Benjamin Klein, BA*; Derek Feuerstein, BS*	
2:05 PM – 2:25 PM	**C13**	**Cyber Forensic Investigations of Web3 Cryptocurrency Wallets on iOS® and Android™**	
		Mohammad Meraj Mirza, MS*; Akif Ozer*; Umit Karabiyik, PhD	
2:25 PM – 2:35 PM		**BREAK**	

Yes, More Secrets—Cryptography, Memory, and Hidden Data

Moderator: Andrew Crouse   *Co–Moderator: Mary Adedayo*

2:35 PM – 2:55 PM	**C14**	**Cryptographic Techniques in Digital Forensics**	
		Taiwo Ogunseyi, PhD*; Oluwasola Adedayo, PhD*	
2:55 PM – 3:20 PM	**C15**	**Leveraging Memory Forensics Artifacts for Android™ Malware Classification**	
		Aisha Ali-Gombe, PhD*; Sneha Sudhakaran, PhD; Golden Richard, PhD	
3:20 PM – 3:45 PM	**C16**	**Going Beyond Forensics With Virtual Private Network (VPN) Application Fingerprinting**	
		Shinelle Hutchinson*; Blake Anderson, PhD; Umit Karabiyik, PhD; David McGrew, PhD	
3:45 PM – 4:05 PM	**C17**	**Unlocking the Audit Trail of an Unsupported Programmable Deadbolt Lock**	
		Nicole Odom, MSFS*	
4:05 PM – 4:45 PM	**C18**	**WITHDRAWN**	

Poster Session

11:30 AM – 1:00 PM	**C19**	**Facial Recognition Searches Using Postmortem Images**	
		Ella Uren, BS*; Kelcy McArthur, MA*; Krystal Howard, MSW; Jennifer Coulson, BA; Jane Harris, PhD	
11:30 AM – 1:00 PM	**C20**	**A Likelihood Ratio Approach for Detecting Behavioral Changes in Device Usage Over Time**	
		Rachel Longjohn, MS*; Padhraic Smyth, PhD	
11:30 AM – 1:00 PM	**C21**	**Artificial Intelligence Technologies in Age Estimation: The State-of-the-Art**	
		Salvatore Roccuzzo, MD*; Aldo Liberto, MD; Elisa Pappalardo, MD; Sabrina Franco, MD; Mario Chisari, MD; Massimiliano Esposito, MD	

*Presenting Author

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Friday

And Boom Goes the (Dynamite) Data Explosion—Data Sets, Databases, and Forensic Tool Testing

Moderator: Jason Lewis   *Co–Moderator: Cole Whitecotton*

8:45 AM – 9:05 AM	**C22**	**Computer Forensics Reference Data Sets (CFReDS) for Digital Evidence** *Rick Ayers, MS; Mehdi Shahid, MS; Barbara Guttman, BA**

9:05 AM – 9:25 AM   **C23**   **The Discovery of Digital Forensic Dataset Characteristics With CASE-Corpora**
Alex Nelson, PhD*; Eoghan Casey, PhD

9:25 AM – 9:45 AM   **C24**   **Manipulating the National Institute of Standards and Technology (NIST) National Software Reference Library SQLite Metadata Sets**
Douglas White, MS*; Austin Snelick, BS*

9:45 AM – 10:10 AM   **C25**   **Computer Forensics Tool Testing (CFTT) Cloud Artifact Extraction Tools**
James Lyle, PhD*; Richard Ayers, MS; Barbara Guttman, BA

10:10 AM – 10:20 AM   **BREAK**

All You Need Is (Love) Standards, Policies, and Procedures

Moderator: Thomas Moore   *Co–Moderator: Gary Daniel*

10:20 AM – 10:40 AM   **C26**   **Standards Development Activities in Digital and Multimedia Forensic Sciences**
Tracy Walraven, MFS*

10:40 AM – 11:00 AM   **C27**   **Escaping the Monolithic Architecture for Digital Forensics and Incident Response Systems Using a Microservices Approach**
Mohammad Meraj Mirza, MS*; Rwitam Bandyopadhyay, BS; Akif Ozer; Bharath Vemula, MS; Umit Karabiyik, PhD*; Marcus Rogers, PhD*

11:00 AM – 11:25 AM   **C28**   **Disambiguating "Ground Truth" for Forensic Applications in Artificial Intelligence**
Cristina Aggazzotti, PhD*; E. Allyn Smith, PhD*

11:25 AM – 11:45 AM   **C29**   **Comparing Defense Attorneys' and Prosecutors' Knowledge of Digital Evidence**
Danielle Crimmins, PhD*; Kathryn Seigfried-Spellar, PhD; Marcus Rogers, PhD

11:45 AM – 1:05 PM   **BREAK**

DIGITAL & MULTIMEDIA SCIENCES

Multidisciplinary Session: Digital & Multimedia Sciences and Engineering & Applied Sciences
The Next 75 Years—The Application of Technology/DMS to the Forensic Sciences

Moderator: J. Levi White   *Co–Moderator: Christina Malone*

| 1:05 PM – 1:30 PM | **C30** | **The Possibilities of Artificial Intelligence in Digital and Multimedia Sciences AI4Forensics** |
| | | *Zeno Geradts, PhD** |

| 1:30 PM – 1:50 PM | **C31** | **The Implementation and Testing of Triplet Convolutional Neural Networks for Forensic Image Matching: Phase I—Setting Up the Algorithm** |
| | | *Brahmani Reddy Aileni, BS; Sharon Derrick, PhD*; Ruby Mehrubeoglu, PhD* |

| 1:50 PM – 2:10 PM | **D37** | **On-Board Video Analysis Is Used to Defend a Truck Operator in the Case of a Pedestrian Killed in the Crosswalk** |
| | | *Kurt Weiss, MS** |

| 2:10 PM – 2:30 PM | **D38** | **WITHDRAWN** |

| 2:30 PM – 2:50 PM | **D39** | **Video Analysis Helps Defend Municipality in Bicyclist's Impact With a Truck** |
| | | *Kurt Weiss, MS** |

| 2:50 PM – 3:00 PM | | **BREAK** |

| 3:00 PM – 3:20 PM | **C32** | **A Universal Disaster Victim Identification Digital Tool for the Management of Fragmented Cross-Jurisdictional Missing Persons' Lists and Antemortem Data in Mass Disasters With Multinational Victims** |
| | | *Shada Alsalamah, PhD*; Afrah Alotaibi, MSc; Sakher Al-Qahtani, PhD** |

| 3:20 PM – 3:40 PM | **C33** | **Augmented Reality Applications for Craniofacial Reconstruction and Fracture Margin Assessment in Forensic Anthropology** |
| | | *Katharine Kolpan, PhD*; Jeffrey Vadala, PhD* |

| 3:40 PM – 4:00 PM | **D40** | **Forensic Human Identification From Facial and Cranial Images Using Deep Learning** |
| | | *Mario Villar, BS; Andrea Valsecchi, PhD*; Pablo Mesejo, PhD* |

| 4:00 PM – 4:20 PM | **C34** | **Potentialities of the Anatomage Table in Forensic Training and Education Programs** |
| | | *Emilio Nuzzolese, PhD*; Corrado Calì, PhD; Giancarlo Di Vella, PhD* |