
Evolving Digital Forensic Sciences

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Résumé

Forensic science faces significant challenges due to rapid societal and technological changes, requiring adaptation to increasing data volume, integration complexities, and evolving ethical concerns. The field is transitioning from traditional methodologies to a more digital-centric approach, incorporating data from IoT devices, smartphones, and a multitude of diverse sources. This shift blurs the distinction between physical and virtual traces, challenging how we ensure contextual accuracy, quality, and relevance in forensic work.

Digital forensics plays a crucial role in this transformation, leveraging AI and advanced technologies to convert digital traces into actionable evidence. While AI enhances forensic capabilities, it also presents risks, such as algorithmic bias, data privacy concerns, and not the least the misuse of emerging technologies by criminals. The forensic community must stay ahead by integrating AI responsibly, ensuring efficiency, robustness, and reliability in forensic investigations.

Future directions include fostering a shared forensic science culture, embracing digital transformation for forensic intelligence and interdisciplinary collaboration. Emerging technologies, such as multimodal AI for 3D crime scene modeling (digital twins), are revolutionizing evidence analysis by enabling large-scale monitoring, rapid data processing, and virtual reconstructions of crime scenes. This talk explores these advancements, highlighting both opportunities and challenges in digital forensics and forensic science.

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