INNOVATION SNAPSHOTS

Volume 3　　　Issue 3　　　May 2023

DEVELOPING MACHINE LEARNING TECHNIQUES TO ANALYZE BODY CAM FOOTAGE

The Rochester police department and Rochester Institute of Technology in the United States are working on a million-dollar project to develop software for scrutinizing police body cam footage. Funded by a grant from the Department of Justice and the Rochester police department for the next three years, this project aims to instill a higher degree of objectivity into analysis and increase public trust and confidence.

In addition to saving valuable human resources from analyzing vast amounts of data, such artificial intelligence will also minimize biases by focusing on data points instead of people and subjective perceptions. Hopeful for extracting patterns using computational techniques and networking on a larger scale, Professor Ernest Fokoue, an internationally recognized academic in statistical learning at the helm of the project, has outlined specific goals to achieve. He expects the program to develop datasets, algorithms, and analytic tools that will not only enable flagging of specific incidents and higher transparency but also facilitate enhanced training and tactics using behavioral analysis of public encounters.

Sources: https://www.rit.edu/news/rit-scientists-developing-machine-learning-techniques-analyze-body-worn-camera-footage; https://www.whec.com/uncategorized/rit-scientists-develop-technology-to-analyze-police-body-cam-footage/

HANSKEN: A CONTRIBUTION TO THE TRANSFORMATION OF DIGITAL FORENSICS ID DOCUMENTS

How can law enforcement keep up with the challenge of analyzing big data in investigations? When suspects have multiple devices and social media accounts, how can the 'digital smoking gun' be found? The Netherlands Forensic Institute (NFI) has been working on this challenge for a long time.

Over ten years ago, the NFI started developing Hansken, a non-profit and government only open digital forensics platform. Hansken provides 'Digital Forensics as a Service' (DFaaS), which is used by Dutch investigation services and a growing number of international law enforcement agencies. Hansken also offers a special academic version of the service to collaborate with international academia for innovation purposes. The Hansken community, which comprises of all license holders serves as a platform to share experiences, knowledge and international developments.

After the source data has been secured in evidence files, Hansken goes through an advanced extraction process to make all relevant traces accessible to users. The platform automatically indexes the traces and categorizes them in Hansken's own trace model. Criminal investigators can then search for digital traces such as files, instant messages, emails and photos, without specialized IT knowledge.

Hansken combines the results of available tools and makes them accessible to investigators so that digital forensics experts can focus on the more complex questions. The Hansken Academy provides training material to users that guides them through the platform and offers useful approaches to digital forensics.

Investigators can create complete reports with technical data, notes and remarks on relevant traces for further research. The platform also allows data to be made accessible to lawyers, the Public Prosecution Service and the court.

For more information visit https://www.hansken.nl/

Hansken
The open digital forensic platform

BUILDING TRUST IN AI: THE LAUNCH OF THE TOOLKIT FOR RESPONSIBLE AI INNOVATION IN LAW ENFORCEMENT

The Toolkit for Responsible Artificial Intelligence Innovation in Law Enforcement (AI Toolkit) is a practical guide for law enforcement agencies worldwide to support them in the design, development, procurement and deployment of artificial intelligence (AI) in a trustworthy, lawful and responsible manner. It is jointly developed by the International Criminal Police Organization (INTERPOL), through its Innovation Centre, and the United Nations Interregional Crime and Justice Research Institute (UNICRI), through its Centre for Artificial Intelligence and Robotics, with the support and contribution of stakeholders and subject matter experts from different sectors, including law enforcement, jurisdiction, academia, industry, civil society, and the general public.

With the AI Toolkit, law enforcement agencies will obtain the necessary knowledge and understanding to enable them to tap into the positive potential of AI while preventing/mitigating potential related risks and building public trust in the use of AI in law enforcement. The official launch of the AI Toolkit will occur on the 8th of June, during the INTERPOL Police Science Congress in Singapore.
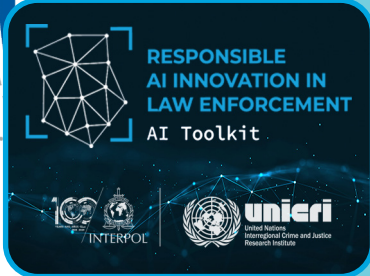
DARLENE PROJECT:
USING AUGMENTED REALITY TO ASSIST LAW ENFORCEMENT AGENCIES AND FIRST RESPONDERS

Augmented reality (AR) and artificial intelligence (AI) are revolutionary technologies that have disrupted various industries, including the security sector. AI is used by numerous law enforcement agencies for forensics and surveillance, while AR is gaining popularity, especially with the emergence of inexpensive wearable devices. Providing police officers with tools to enhance their situational awareness during patrols and tactical situations is anticipated to enhance the safety and effectiveness of law enforcement agencies in countering criminal and/or terrorist threats.

DARLENE is a project funded by the European Union with the main goal of exploring the use of cutting-edge AR technology to assist law enforcement agencies (LEAs) and first responders in making informed and rapid decisions, particularly in time-sensitive situations. The project aims to create innovative AR tools that improve situational awareness in response to criminal and terrorist activities. To achieve this, DARLENE will leverage the power of AR smart glass technology and advanced computer vision algorithms, together with 5G network architectures, to enable quick processing of real-time data by LEAs, even in high-pressure situations.

The project will equip police officers with affordable wearable devices that facilitate an elevated situational awareness during patrolling and tactical scenarios.

Some of the functionalities that are being developed in DARLENE include:

1. AR glasses and helmets to provide police officers with an enhanced field of view and situational awareness during patrols and tactical scenarios.

2. Real-time object recognition and tracking using AI algorithms to identify and track objects of interest in the environment.

3. Integration with existing LEA databases and information systems to provide officers with real-time access to critical information and intelligence.

4. Advanced communication and collaboration tools to facilitate coordination and information sharing among officers and other agencies.

5. Multi-language support enabling officers to communicate with members of the public who speak different languages.

6. Privacy and data protection mechanisms to ensure compliance with relevant regulations and ethical standards.

Source: Snapshot contribution from Valencia Local Police, Spain. For more information, visit the Innovation Pavilion on the INTERPOL Global Knowledge Hub (GKH)

QUANTUM COMPUTERS AS A SERIOUS THREAT TO ELECTRONIC ID DOCUMENTS

Unlike conventional computers, quantum computers use quantum mechanical effects for computation. A multitude of tech companies (e.g., IBM, Google, and Amazon) are developing quantum computers. The computing power they deliver is rising rapidly – every year. Quantum computers can solve certain calculations much faster than today's computers. They are set to enable breakthroughs in areas such as AI and chemical simulations. Once sufficiently powerful quantum computers are available, they could also be used to perform pervasive cryptanalysis.

As such, they have the potential to disruptively threaten the pre-established and widely used encryption algorithms such as RSA (Rivest Shamir Adelman) and ECC (Elliptic Curve Cryptography). The impact could extend beyond information and communication technology to pose a serious threat to the security of almost all existing electronic identity documents (ePassports, national electronic ID cards, etc.). In 2017, the US-based National Institute of Standards and Technology (NIST) started a competition to select cryptographic algorithms capable of withstanding the computing power of quantum computers, enabling what is known as Post-Quantum Cryptography (PQC). Now that the first algorithm candidates have been selected, work continues to integrate PQC into all relevant government ID standards. This process will take some years.

Although the first standards are expected in 2024 at the earliest, the rapid development of quantum computing signals the inevitability of this trend and the importance of early preparation. Knowledge and expertise will be essential to put appropriate and commercially feasible solutions in place in good time. In 2022, the German Federal Printing Office (Bundesdruckerei GmbH), the Fraunhofer Institute for Applied and Integrated Security and Infineon demonstrated for the first time a quantum computer-resistant version of the Extended Access Control (EAC) protocol for an ePassport. First pilot projects for national eID cards are expected to start soon after 2025. The wide-scale roll-out of quantum-safe documents is expected to start before the end of this decade.

Source: Snapshot contribution from Infineon. To learn more, please visit www.infineon.com/pqc or download the Post-Quantum EAC - Whitepaper. You can also take a look at the Eurosmart white paper (Quantum computers will compromise the security of ID documents) with its recommendations for European and other ID projects around the world.

INNOVATION CENTRE EVENTS

08/06
AI Toolkit Launch at INTERPOL Police Science Congress
Singapore

15/06
Linux as a Tool and as a Source of Evidence
IC Virtual Room

21/06
Non-Fungible Tokens Implications for Law Enforcement
IC Virtual Room

For more information, please contact the INTERPOL Innovation Centre
✉
innovation@interpol.int

27/06
New and Emerging Digital Platforms
IC Virtual Room

DID YOU KNOW?

Thames Valley Police (England), is set to deploy the 'Digital 101' platform in the coming months following testing. This service will allow crime victims to receive automatic updates regarding the status of ongoing investigations, instead of having to call the non-emergency helpline. The system will not only streamline the follow-up process for victims but also reduce the workload for dispatchers and waiting times for other callers.

DISCLAIMER

INTERPOL

Innovation Centre
INTERPOL Global Complex for Innovation
18 Napier Road
Singapore 258510
T: +65 65503569
Email: IC-Snapshots@interpol.int