Intelligence Led Policing in the Age of Artificial Intelligence

Roger von Laufenberg, PhD
VICESSE | Vienna Centre for Societal Security
CEPOL Research & Science Conference – Mykolas Romeris University, Vilnius – 09.06.2022
1. Introduction – the use of ML & DL in law enforcement
2. The promises of AI
3. The caveats of AI
4. Rethinking AI
The use of ML/DL applications in law enforcement

Use of ML/DL is broad, multimodal and complex

Examples:
• Predictive Policing
• Facial Recognition
• Crime Scene Analysis
• Analysis of patterns, flows of criminal activities, modus operandi
• Perimeter Protection
• etc
Crime Scene Analysis

Vorher

Nachher

Spur

bricht hier

Schwachstelle
Crime Scene Analysis

Toolmarks → Patches → Embedding (Triplet Learning)
The promise of AI

The introduction of AI-tools are always heavily driven by expectations and imaginations:

- Increase in Performance (Time)
- Increase of Efficiency (Money)
- Pre-emptive crimefighting (Future)
The caveats

Data & Theory

Technology

Practices
Example of the UTKFace Database:
- 23,705 labeled pictures
- Faces of people aged between 0-116
- Used to train facial recognition
- Labels: Age (ranged 0-116), Gender (0=male; 1=female), race (white, black, asian, indian and others (e.g. Hispanic, Latino, Middle Eastern)

Source:
www.kaggle.com/datasets/jangedoo/utkface-new
Example of the UTKFace Database:
- 23,705 labeled pictures
- Faces of people aged between 0-116
- Used to train facial recognition
- Labels: Age (ranged 0-116), Gender (0=male; 1=female), race (white, black, asian, indian and others (e.g. Hispanic, Latino, Middle Eastern))
Analysis of the UTKFace database:
• Skewed distribution between populations, particularly when labels are combined
• Attribution of labels are also questionable
Theory

Affect-recognition tools:
- Recognition of emotions (fear, happiness, anger, etc) in Facial Recognition
- Risk Classification Models
- Affect recognition is based on highly disputed research done by Paul Ekman in the 1960es and 1970es – with no real evidence of success
- Now used/experienced with in ML-applications
Technology

Adapting Crime Scenes to be machine readable
Practices

• Incorporating technologies into law enforcement practices
• Data overflow: “drowned in a data lake”
• Interoperability and Infrastructures
• Low performance of technology
TAMERLAN TSARNAEV
WHAT WE THINK WE KNOW ABOUT WHO KNEW WHAT AND WHEN

WHAT FEDERAL AGENCIES KNEW

In 2011, the FBI was investigating Tsarnaev for potential ties to radical Islam.

On March 4, 2011, Tsarnaev was arrested for visa fraud.

Tsarnaev was charged with murder and attempted murder.

His name was added to at least two terrorist databases.

He traveled overseas.

WHAT THERE WAS TO KNOW

He was a follower of radical Islam.

He was investigated for potential terrorist ties by the FBI.

WHAT LOCAL LAW ENFORCEMENT KNEW

INVESTIGATING WHAT (IF ANYTHING) WENT WRONG.

President Obama has asked the National Counter-Terrorism Center to review what agencies knew, and when. In the meantime, before we know much of anything, expect grandstanding galore from anyone in Congress who thinks they have any chance at all to get any kind of traction by pretending to know.
Rethinking AI

“AI is neither *artificial* nor *intelligent*” (K. Crawford)

- ML/DL applications as one component in the techno-social assemblage
- Embedded in practices
- Relying on past data to “predict” the future

→ AI as a means to assist crime fighting and prevention
Thank you!

Roger von Laufenberg, PhD
Vienna Centre for Societal Security | VICESSE

Email: roger.von.laufenberg@vicionesse.eu
Twitter: @Roger_vonL