The AI Act and the Future of Digital Forensics Standards
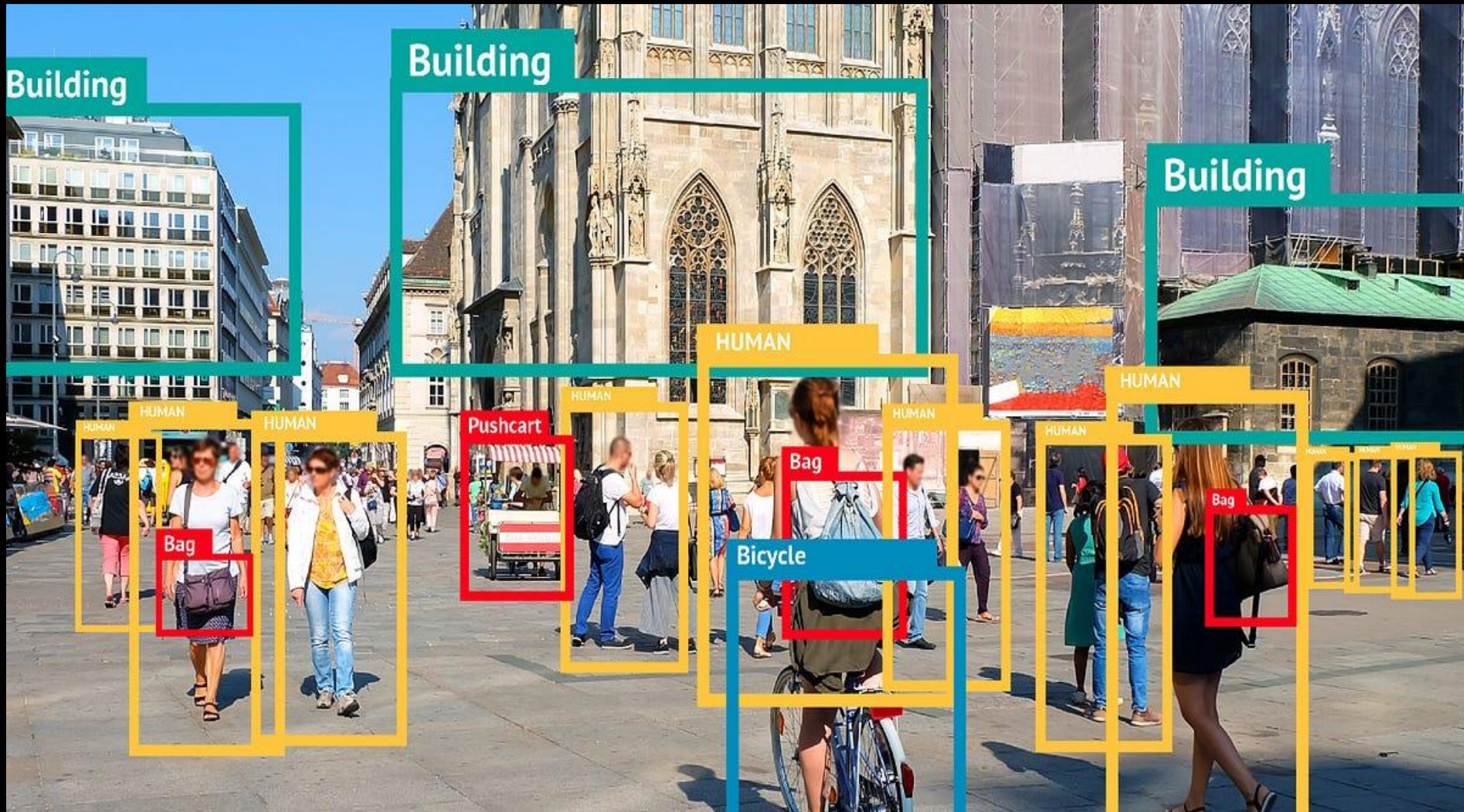
CRIM_AI Conference (7-8 November 2024, University of Luxembourg)

Adi Stoykova, Groningen University

Image: © Creation of A.I. After Michelangelo's Sistine Chapel by Je Moretti

1. AI for forensics: it is not just about system design…

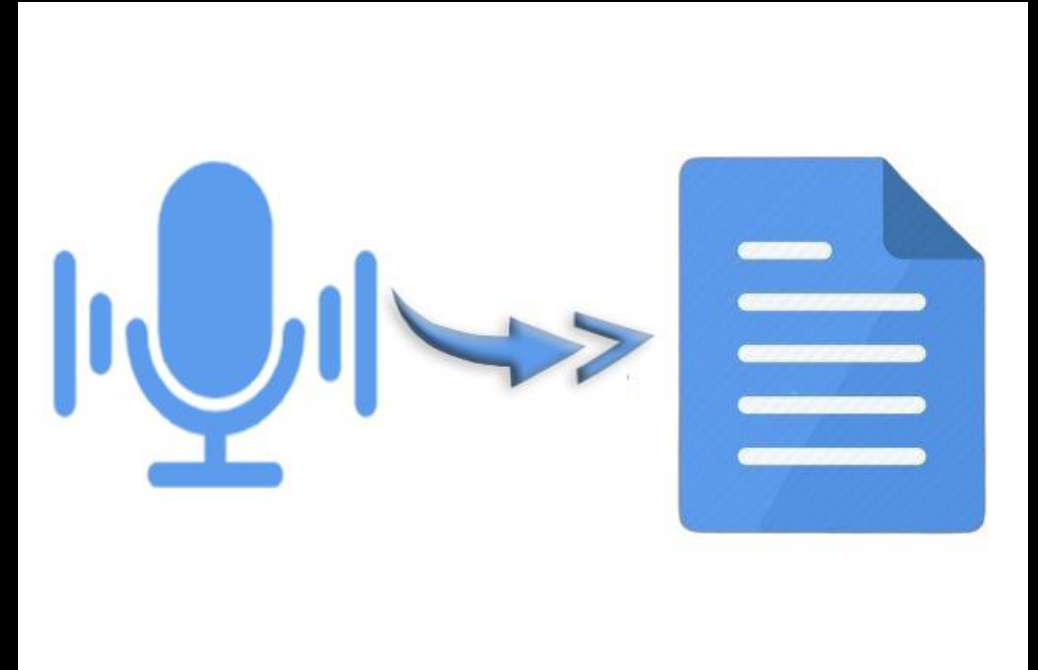https://medium.com/@apandey_24903/automating-object-detection-62f4b432673c

Dietlmeier J and others, 'How Important Are Faces for Person Re-Identification?', *2020 25th International Conference on Pattern Recognition (ICPR)* (2021)

Automate Interview Transcriptions: Low Risk?

- 1h audio = 11-13h human transcription work!

- 27 min audio ~ 45sec with Automated Speech Recognition!

Stoykova R, Porter K and Beka T, 'The AI Act in a Law Enforcement Context: The Case of Automatic Speech Recognition for Transcribing Investigative Interviews' (1 August 2024) <https://papers.ssrn.com/abstract=4913090> accessed 13 September 2024.

AI provides written content of what was said...

How to investigate a firm with 60 million documents

○ 19 January 2021

FRA

Yousr Khalil was part of a team of 70 investigators

The New York Times

Flaws in Cellphone Evidence Prompt Review of 10,000 Verdicts in Denmark

TERS® World ∨ Business ∨ Markets ∨ Sustainability ∨ Legal ∨ Breakingviews ∨ Technology ∨ Investig

United Kingdom

What is Britain's Post Office scandal?

By **Sachin Ravikumar**

January 10, 2024 11:11 PM GMT+1 · Updated 16 hours ago

A post office sign hangs above a shop in Belgravia, in London, Britain January 7, 2024. REUTERS/Hollie Adams *Acquire Licensing Rights*

LONDON, Jan 10 (Reuters) - One of Britain's biggest miscarriages of justice, the wrongful conviction of hundreds of Post Office workers due to faulty software, has exploded into the public domain following a TV drama, triggering demands for justice.

Gendarmerie nationale

Special Investigative Task Force EMMA 95

Criminal case on the encrypted phones network Encrochat

2017
Use of encrypted phones "Encrochat" by criminals

CERBERUS
The gendarmes start understanding the functioning of the technology

2018
Opening of a criminal case by the specialized interregional court (JIRS) of Lille
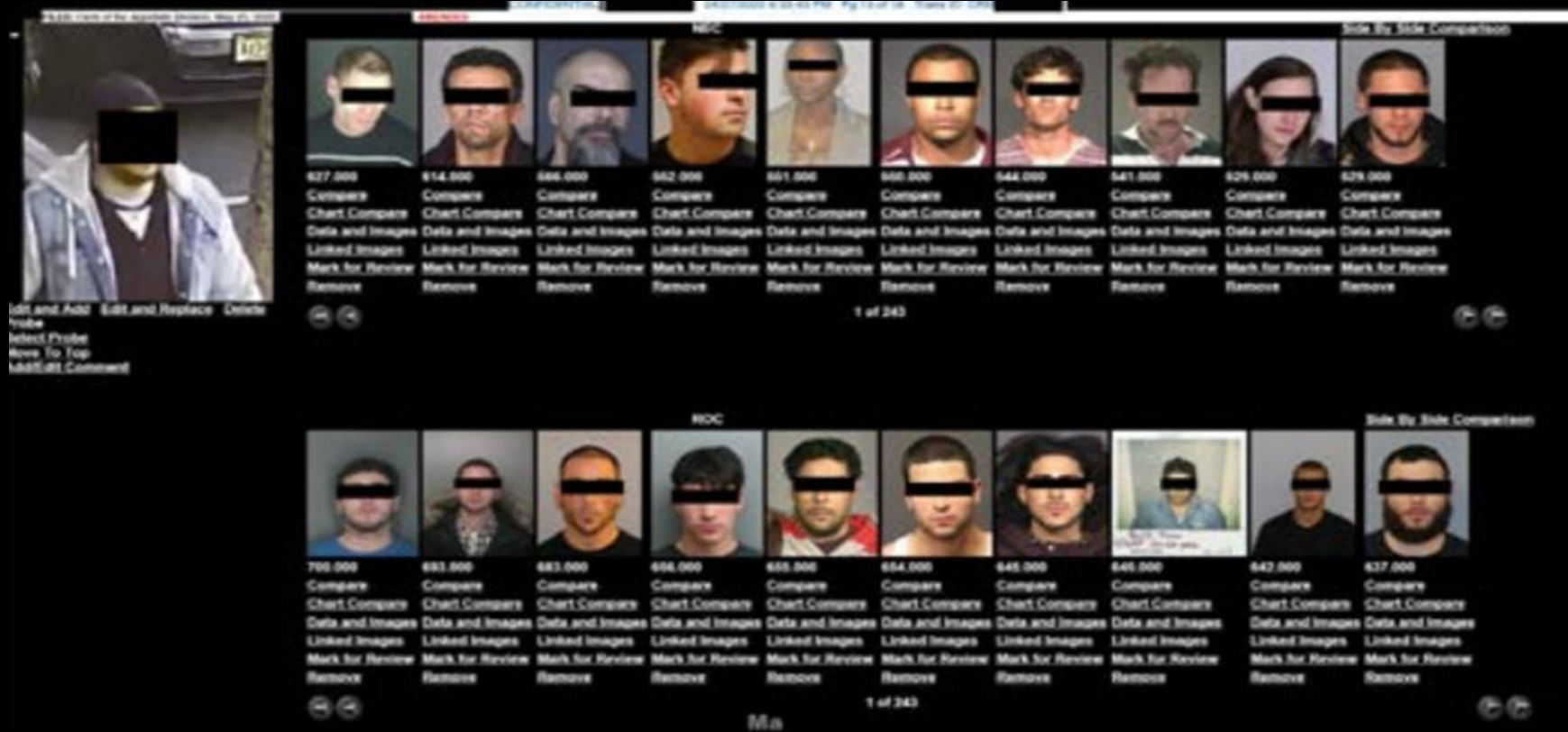
National cyber center of the gendarmerie (C3N)

2020
Creation of a Special investigative Task Force

60 investigators
90 % of the regional criminal investigation units involved

Cyber-investigation
Implementation of a data capture technique

EncroChat

Criminal cases open in France

Criminal cases open in several countries

Drug trafficking

Weapon trafficking

Joint Investigation Team (JIT)

EUROJUST

International units of more than 10 countries

EUROPOL

Outcome :
Arms, drug, cash seizures !
Lot of arrests !

GIGN NATIONALE

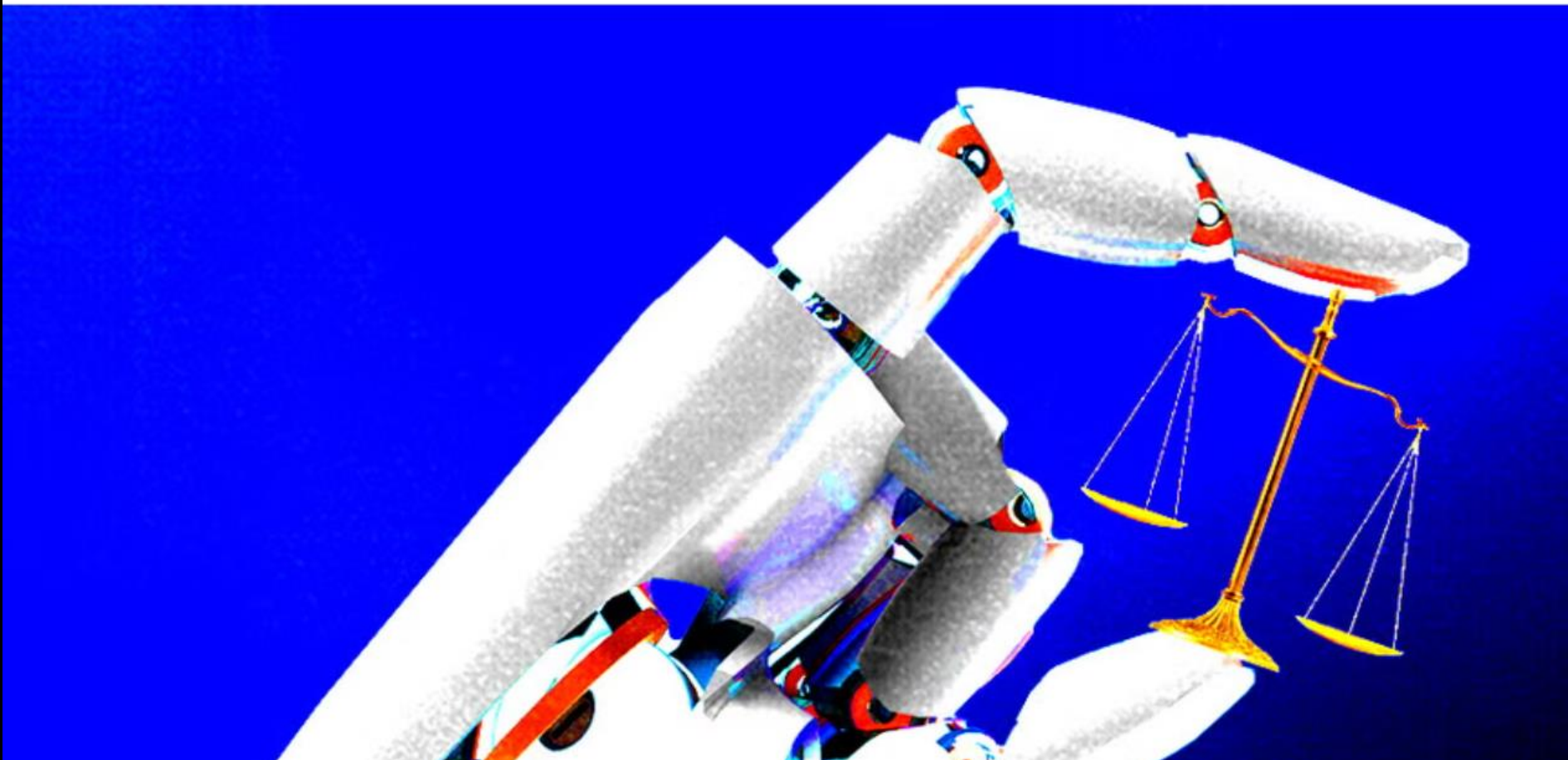# 2. You can automate, but it should hold in court!

A screenshot of the DataWorks Plus Case Management interface, showing two algorithms run concurrently. (Source: Hudson County, NJ Prosecutor's Office)

A FORENSIC WITHOUT THE SCIENCE

FACE RECOGNITION IN U.S. CRIMINAL INVESTIGATIONS

GEORGETOWN LAW
Center on Privacy & Technology

TECH

Prosecutors used an AI tool to send a man to prison for life. Now the person who created it is under investigation.

https://www.businessinsider.com/ai-crime-tool-cybercheck-founder-adam-mosher-investigation-2024-8

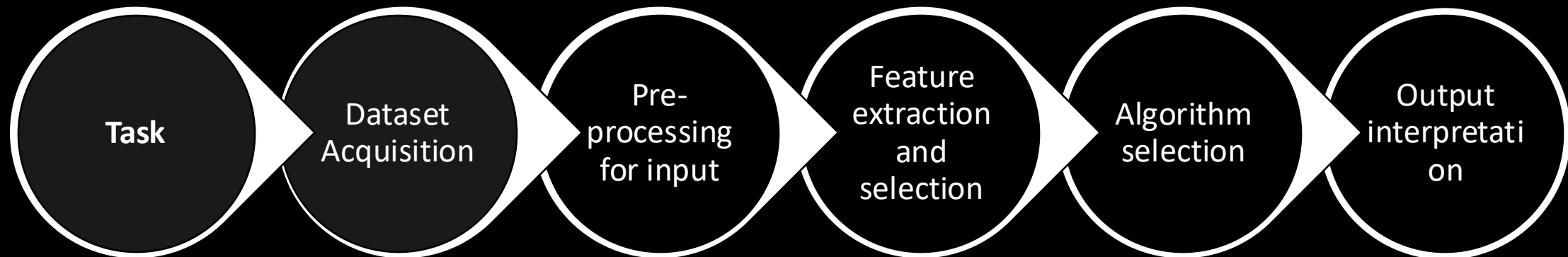# 3. The standardization problem a.k.a The butcher inspects his own meat?

Police are increasingly using digital vehicle forensics to solve cases

Posted on Jan 4, 2021 by Caleb Chen

https://www.privateinternetaccess.com/blog/police-are-increasingly-using-digital-vehicle-forensics-to-solve-cases/

Machine Learning pipeline: ISO/IEC 23053:2022

Task → Dataset Acquisition → Pre-processing for input → Feature extraction and selection → Algorithm selection → Output interpretation

arXiv > cs > arXiv:2408.11249

Computer Science > Artificial Intelligence

[Submitted on 20 Aug 2024]

The Dilemma of Uncertainty Estimation for General Purpose AI in the EU AI Act

Matias Valdenegro-Toro, Radina Stoykova

Forbes

FORBES > BUSINESS

BREAKING

Lawyer Used ChatGPT In Court—And Cited Fake Cases. A Judge Is Considering Sanctions

Molly Bohannon Forbes Staff
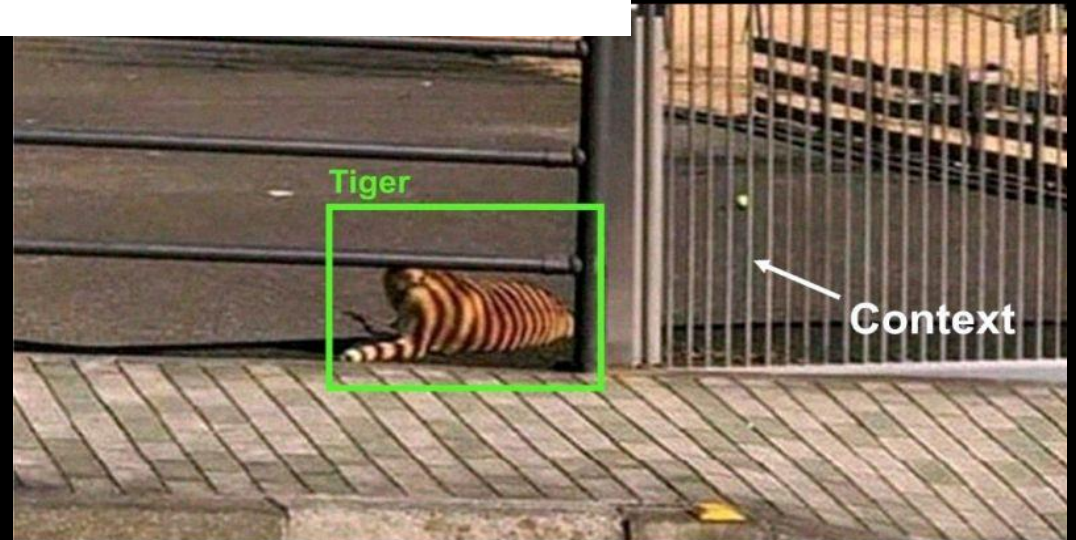*Molly Bohannon has been a Forbes news reporter since 2023.*

Follow

Jun 8, 2023, 02:06pm EDT

Updated Jun 8, 2023, 03:42pm EDT

TOPLINE The lawyer for a man suing an airline in a routine personal injury suit used ChatGPT to prepare a filing, but the artificial intelligence bot delivered fake cases that the attorney then presented to the court, prompting a judge to weigh sanctions as the legal community grapples with one of the first cases of AI "hallucinations" making it to court.

Tiger

Context

4. Beyond standards...

Computer Law & Security Review

ELSEVIER

A New Right to Procedural Accuracy: A Governance Model for Digital Evidence in Criminal Proceedings

Radina (Adi) Stoykova ✉

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A digital right to procedural accuracy?

- *Status negativus*: Protection against unreliable digital evidence processing

- *Status positivus*: Access, explanation, and forensic assistance
    - Right to access to the chain of custody
    - Right to explanation of methods and results
    - Access to digital forensics assistance

- *Status activus*: The right to participate in **determinative stages** of digital evidence processing

Based on Jellinek`s theory of subjective public rights

AI for forensics – it is not just about AI system design, but also:

- **Novel interpretation of digital forensics standards in AI context**

- **Procedural safeguards**

- **Active defence rights!**

Thank you for your attention!

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