"Criminal Proceedings and the Use of AI: Challenges for Common Criminal Procedure Principles and the Principles of the Rule of Law"

Criminal prosecution in the age of AI

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Judicial applications of Artificial Intelligence Systems (AIS)

- A major challenge
- High expectations
- A form of paradox
- A focus on evidence

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Plan

- The place of AIS today in French criminal procedure
- What does the future hold for AIS?
- Some questions still to be adressed
- Conclusions

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THE PLACE OF AIS TODAY IN FRENCH CRIMINAL PROCEDURE

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AI technologies deployed

- Many ideas, many projects
  - but few applications
- Actually in use
  - Automatic license plate reading
  - Facial recognition, mainly through the TAJ file

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LAPI (automated license plate recognition)

- Smart cameras
  - Only on security force devices (police, gendarmerie, customs), with fixed or mobile cameras
  - Generates alerts in the event of reconciliation with the stolen vehicle file and the SIS
  - Matching must be confirmed by a human operator
  - Captures a photograph of the vehicle with its occupants and geolocation
  - Retention period 1 month for alerts, 8 days for plates read
- The technology has also been deployed for recording traffic offences (parking, speeding)
  - But reading is only triggered if an offence is detected
- No centralization of registration data collected by private players (Toll companies, parking lots)
  - But these data can be requisitioned

The TAJ file (suspects)

- File of suspects, but also victims with their consent
  - 18 million people
  - Includes photographs
- Allows use of a facial recognition system
- Widely accessible (with authorization):
  - police, gendarmerie, intelligence and other government departments, prosecutors, examining magistrates
- Has been the subject of numerous unsuccessful appeals

Using facial recognition in TAJ

- It is mainly used to signal people in police custody.
- Its uses
  - to **determine the true identity**, or at least the aliases, of arrested individuals
  - to **identify suspects from images or videos** revealed by the investigation
- But with a limitation linked to the quality and framing of the test image
- Most often, the test image is provided by a video surveillance system (public or private).

How TAJ is used

- This facial recognition system is widely used
  - (by informal survey of investigators)
- Investigators consider it to be extremely reliable for finding a person in the TAJ.
- Depending on the final version of the RIA, a conflict may arise
  - No authorization by a magistrate
  - Not limited to serious offences

Cas concret : jugement TC Lyon 31 octobre 2019

- The perpetrator of a cargo theft is filmed, brought closer by the TAJ, recognized by the investigator, arrested and finally convicted. He withdraws his appeal
- His lawyer considered that his client had been convicted solely on the basis of the algorithm and raised a number of nullities, which were rejected

… suite

- But the court noted:
  - The gendarme who made the reconciliation, the gendarme who heard the reconciliation and the court itself were able to establish that the defendant was the person present on the video.
  - The court therefore considers that there is no violation of the principle laid down in article 11 of EU directive 2016/680, since the decision is not based “exclusively on automated processing”.

Comments

- This case had given rise to press coverage on the scent of a denunciation by his counsel
  - "conviction solely on the basis of an automatic system".
- Great caution in commenting on judicial decisions
  - Often a militant prism

Conclusions

- Both the LAPI and the TAJ illustrate the dynamic nature of obtaining evidence in an investigation, through the progression
  - of **low probative value**
    - Ex: The calculation made by the AI
  - to elements of **greater probative value**
    - These are often the ones that will convince the court
- This is not specific to AI
  - DNA matching, followed by expert examination
  - alcohol screening or signs of intoxication on BAC measurement
  - Geolocation for surveillance or to obtain video images
  - Identification and search for murder weapon

WHAT DOES THE FUTURE HOLD FOR AIS?

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What future judicial uses for AI?

- High political expectations, expressed at the highest level of government
- An initial survey of needs among judicial users
- An extremely dynamic field
  - Considerable increases in computing power over the coming years
  - Coupled with increasing optimization of engines and models

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The context: digitization of the penal chain

- No AI without a fully digitized penal chain
- Situation in France
  - Investigation files have been fully digitized for the past 6 years, but with a paper original
  - Purely digital procedure drafting tools for years (LRPPN)
  - Paperless criminal procedure tools deployed in some courts
    - Objective: completion by 2027

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Context : A favorable legislative framework

- Principle of freedom of evidence
- Authorization and deployment of forensic matching software for criminal analysis (CPP 230-20ss)
  - Today, it's mainly reconciliation driven by the investigator's instructions
  - Not to be confused with serial analysis files

Context : a very restrictive personal data framework

- The french law on personal data is very restrictive
- Every specific application using sensitive data requires a previsous validation by french DPA (CNIL) and a decree
- Even research work on judicial files in very difficult to make

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Towards a multiplicity of AIS

- Conviction: the need for multiple systems using AI modules
- Because the questions to be addressed are very diverse
  - Relating to the law and its application (procedural issues, qualifications)
  - Relating to evidence
  - Relating to opportunity

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How can AI be used for probationary purposes?

- SIAs don't provide proofs, they make calculations based on them.
- Depending on their nature, these calculations can or may make it possible to
  - direct attention to potentially relevant elements
  - reveal invisible features of the evidence
  - Produce discourse from the evidence to aid decision-making

Attentional AIS

- They are used to guide the investigation
  - Once the evidence has been identified, the investigative work remains the same
- Applications :
  - Pattern matching (face recognition)
  - categorization (weapons, drugs)
  - Data extraction (e.g. reconstitution of a telephone's route, reconciliation of the co-presence of two telephones)
  - Automatic transcription1st degree automatic translation => for subsequent translation by a sworn translator
- Stakes : very low (not considering possible fundamental rights issues), due to substitution effect

Revealing AIS(1)

- AIS produces a result that cannot be discussed by the parties or assessed by the judge.
  - Examples: speaker identification / fingerprint comparison / denoising
- The stakes are much higher
  - Epistemic dependence
  - Raises the question of confidence in the results
  - And that of the occurrence of errors and the ability to detect them
  - Risk of overconfidence

Revealing AIS (2)

- This situation is not specific to AI.
  - Solutions certification or accreditation
  - Counter-expertise
  - Use of calidated methodologies
  - Ability to explain the approach (in writing or in court)
  - Article 11 of directive 2016/680
- And cross-referencing with other evidence

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Decision-support AIS

- Clearly a major challenge, especially for mass and straightforward litigation.
  - Nothing exists in France today
- We're approaching the logic of predictive justice systems
- Idea: analyze a complete procedure
  - Identify salient elements (label documents, fragments of text) and organize them (by fact, by defendant, etc.).
  - Make comparisons (e.g.: person using a nickname or several identities)
  - Produce summaries
    - Simple version: of parts
    - Advanced version: of the whole case file (e.g.: summarize the position of different defendants)
    - Propose a draft based on the elements determined by the magistrate
    - And ultimately, propose a decision

Decision-support AIS

- On the decision suggestion
  - Not a real issue for professionals: contrary to common sense, in most cases, magistrates do not have any difficulties.
  - In difficult cases, which are borderline cases, the variability between magistrates is real.
- some possible applications for the public prosecutor's office:
  - suggestions for orientation (classification, alternative, prosecution, modes of prosecution)
  - suggestion of penal qualifications
  - In general: determine applicable legal measures

SOME QUESTIONS STILL TO BE ADDRESSED FOR JUDICIAL AI

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Some applications may not be possible

- We read a lot of very affirmative statements about the benefits of AI
  - It's a very active field of research
  - There's no doubt that immense progress will be made
- But there are now well-documented limitations to overcome:
  - Technical : hallucinations, bias, opacity, training costs
  - Human: acceptance, collage
- But there are also questions specific to the legal field

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Can we train AIS to write decisions based on other decisions?

- Many training sessions are based on databases of judgments (which are set to expand considerably with open data).
- However, the magistrate's actual situation is to produce a decision based on a case file
  - the statement of facts is not written before the decision, but after it
  - For the sake of brevity, only relevant facts are included
  - Many of the factors determining the sentence are not included in the judgment.

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How do we deal with the changing face of criminal law and crime?

- Criminal law is particularly fluid, so what is the relevance of using decisions taken in an old legal configuration as training data?
- What about new, repealed or rarely used offenses?
- Operating methods are also highly variableover time
  - They are also often quite unique

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Can we train a system for opportunity?

- Legal decisions are the result of a well-known process
  - The insertion of facts into the legal space
  - Reasoning that defines all legally possible decisions
  - More or less clearly expressed principles to guide choices
  - At the end of the day, it's all up to the decision-maker
- Latitude in terms of qualification varies greatly according to the concepts involved
- The degree of opportunity is highly variable
  - Very low in terms of competence
  - Very important when it comes to sentencing or adjustments
  - Maximum for a prosecutor (discretionary prosecution)
- Opportunity may include tactical elements and external information

CONCLUSIONS

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What will we certainly need ?

- Transparency
  - In the systems implemented
    - Often highly deeply embedded and not always visible
    - Their performance and bias
  - In how they are used
  - Enabling users to detect errors
- System certification
  - Compliance, methodology, training data (several ISO standards on the subject)
- Endorsed AI
  - The raw result of an AI must be validated by a competent person

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