The use of AI tools in criminal courts: Justice done and seen to be done?

Artificial intelligence in criminal justice

ERA, Barcelona, 15-16 June 2023

Vanessa Franssen

LIÈGE université

Outline

- Introduction
- AI as a tool to facilitate adjudication
  - Types of tools & examples
  - Advantages - disavantages
- AI-based adjudication: ‘robot judges’?
  - Examples
  - Advantages - disavantages
- Conclusions

Present

Future(?)

Introduction

Introduction

- (What is AI?)
  - Knowledge-based learning
  - Data-based learning
    - Machine learning, deep learning
- What **potential uses** in the area of criminal justice?
  - Detection
  - Prediction
    - Facts
    - Legal outcomes
  - Automated adjudication
  - Automated execution

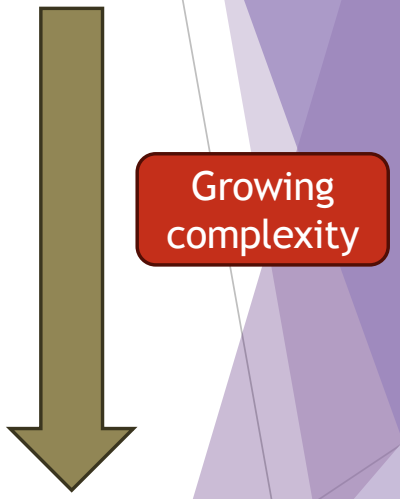
My focus

- **Assessment**
  - Promising: ‘ultimate’ justice?
  - Or Pandora’s box?

AI as a tool to facilitate adjudication

AI as a tool to facilitate adjudication (1)

- **Three types of tools**
  - Tools that make existing legal information more easily accessible and searchable
  - Tools that make predictions about the outcome of legal cases
  - Tools that aim to predict human behaviour relevant for (post)sentencing decisions



AI as a tool to facilitate adjudication (2)

- **Tools that make existing legal information more easily accessible and searchable**
  - Example: legal search engins
    - Simple
    - More complex, sophistaced
    - Public vs private

Well established

AI as a tool to facilitate adjudication (3)

- **Tools predicting legal outcomes**
  - AI tools based on assisted machine learning developed for the purpose of predicting the most likely solution to a dispute
    - With varying degrees of accuracy
    - Probability of success of certain proceedings

AI as a tool to facilitate adjudication (4)

- **Tools predicting legal outcomes**
  - Examples
    - Predictice
      - Algorithm will calculate the probability of resolution of a dispute as well as the range of compensation amounts
      - Exported and made comprehensible in the form of a customizable report
    - Supra Legem
      - For free
      - Migration law, prediction of administrative return decisions
      - Based on analysis of existing case law, per judge and district
    - Legal insights
      - Developed by Wolters Kluwer
      - Labour law
      - Makes predictions about the chances of winning a dismissal case

AI as a tool to facilitate adjudication (5)

- **Tools predicting legal outcomes**
  - Examples (cont'd)
    - Case Law Analytics
      - Software that examines the risks regarding a contract or a litigation
      - Possible to measure in a precise way the influence of a specific element of a case, in the decision of the judge in charge of the case, or to know how to adjust in the best way a clause in the contract
    - Case crunch
      - Predictions about, for instance, insurance claims, based on the analysis of the outcome of past claims
      - 2017 competition: the system proved to be right about the expected outcome in 87%, compared to 62% of correct assessments by 100 top lawyers of London law firms

AI as a tool to facilitate adjudication (6)

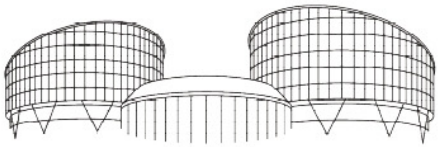
- **Tools predicting legal outcomes**
  - Examples (cont'd) – closer to the criminal law field
    - AI tools that involve machine learning and natural language processing to predict the outcome of a case before certain courts
      - U.S. Supreme Court
      - European Court of Human Rights

AI as a tool to facilitate adjudication (7)

- **Tools predicting legal outcomes**
  - Examples (cont'd) – closer to the criminal law field
    - **U.S. Supreme Court**
      - Daniel Katz et al. (2017)
      - Prediction of justice votes and case outcomes
      - 2 century work of cases (1816-2015)
      - ~ 70% accuracy

AI as a tool to facilitate adjudication (8)

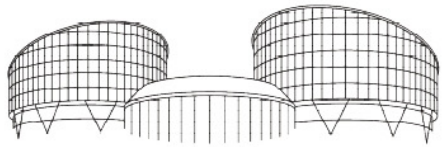
- **Tools predicting legal outcomes**
  - Examples (cont'd) – closer to the criminal law field
    - **European Court of Human Rights**
      - Nikolaos Aletras et al. (2016)
      - Similar study
        - Ambition: 'predict whether a particular Article of the Convention has been violated, given textual evidence extracted from a case'
        - 'ex ante prediction of ECtHR outcomes' based on 'text extracted from published judgments'
      - Limited to Articles 3, 6 and 8 ECHR
      - -/+ 79% accuracy



EUROPEAN COURT OF HUMAN RIGHTS
COUR EUROPÉENNE DES DROITS DE L'HOMME

AI as a tool to facilitate adjudication (9)

- **Tools predicting legal outcomes**
  - Examples (cont'd) – closer to the criminal law field
    - **European Court of Human Rights** – some details
      - Sample of 584 decisions
        - Cases related to Articles 3, 6, and 8 of the European Convention on Human Rights (ECHR)
        - 250, 80 and 254 cases for Articles 3, 6 and 8 ECHR, respectively
        - Balanced number of violation/non-violation cases
      - Analysis based on
        - Use of facts reproduced in public judgments
          - Identifiable section in judgments
          - Things on which there is no dispute
        - Not: applications and briefs submitted by parties (often similarity, but maybe not)



EUROPEAN COURT OF HUMAN RIGHTS
COUR EUROPÉENNE DES DROITS DE L'HOMME

AI as a tool to facilitate adjudication (10)

- **Tools predicting legal outcomes**
  - Examples (cont'd) – closer to the criminal law field
    - **European Court of Justice?**
      - Similar analysis possible?
      - Voting behaviour of EU judges?
        - No concurring nor dissenting opinions…
      - Different types of proceedings -> judgments not necessarily structured in the same way
        - Preliminary rulings
        - Annulment procedure
      - Great variety of (primary and secondary) legislation!

AI as a tool to facilitate adjudication (11)

- **Tools predicting legal outcomes**
  - Advantages
    - For practitioners/lawyers (and their clients)
      - To assess, *ex ante*, the success rate of future litigation &
      - To prepare their cases more effectively
    - For judges
      - Tools allow them to position themselves against previous decisions taken by other courts in their legal system &
      - thus to ensure more consistency in case law, even in legal systems that do not adhere to the doctrine of binding precedent

AI as a tool to facilitate adjudication (12)

- **Tools predicting future human behaviour**
  - Behaviour of suspects/convicts
  - *Ex ante* prediction
  - Used for a particular person
  - But prediction based on
    - Past **group** data
    - Combined with personal data (sex, age, …)
  - Purposes: decisions on execution of sentence (eg parole) or even sentencing(?!)
  - Advantages
    - Evidence-based indication about the suspect's likelihood to reoffend
    - To make better informed, allegedly more objective and less biased decisions

AI as a tool to facilitate adjudication (13)

- **Tools predicting future human behaviour**
  - Examples
    - COMPAS ('Correctional Offender Management Profiling for Alternative Sanctions'), U.S.
      - Classic example of supervised machine learning
      - Algorithm is trained with past data
      - Analyzed on the basis of a decision tree
      - Develops model relationships between independent and dependent variables
      - In a next step, this model is tested on new cases to improve its performance
      - Once sufficiently trained, the algorithm is applied in individual cases to determine the defendant's recidivism score on a scale of ten
      - Eg *Loomis* case, Wisconsin Supreme Court (2016)

AI as a tool to facilitate adjudication (14)

- **Tools predicting future human behaviour**
  - Examples
    - HART ('Hart Assessment Risk tool')
      - Used by the Durham police
    - CAIS ('Correctional Assessment and Intervention System')
      - Developed by the National Council on Crime and Delinquency, U.S.
      - For post-sentencing treatment by social services agencies

AI as a tool to facilitate adjudication (15)

- Advantages
  - Computing power and speed of execution
    - AI can process a large amount of data, consisting of judicial decisions, legal rules, but also examples of cases
    - Repetitive tasks can be automated
    - To eradicate time-consuming tasks
  - Speed of the proceedings
    - Relieve the courts, tackle the (systemic) problem of judicial delays

AI as a tool to facilitate adjudication (16)

- Advantages (cont'd)
  - Factor of consistency for judicial practices
    - Particularly true for AI tools predicting legal outcomes in fairly simple legal proceedings that require limited human judgment
      - Typically highly regulated fields of law with quite precise legal requirements (eg traffic law, labour law or immigration law)
  - Neutrality and accuracy(?)
    - Eg more objective and accurate than human beings in analyzing a criminal's chances of reoffending

AI as a tool to facilitate adjudication (17)

- Disadvantages
  - Data quality & risks of errors and biases
    - Collection of data
      - ‘incomplete data, low quality data, incorrect or false data, and discrepant data (data that differ from the data the system was designed for)’
      - ‘Garbage in, garbage out’
      - Eg COMPAS
        - Racism not a factor, but still race biais due to collected data
        - Nation-wide group data >< social, economic, legal, etc. context of Wisconsin
      - Enough (good) data available?
        - In *your* legal system?
      - Past data → updates? (to account for changes in legal, educational, economic, etc. contexts)
      - AI may ‘blin[d] us to everything that is not quantifiable and digitizable.’

AI as a tool to facilitate adjudication (18)

- Disadvantages
  - Data quality & risks of errors and biases (cont'd)
    - Functioning of the AI system, exploitation of data
      - Machine learning techniques appear to be value-neutral, but is this really true?
        - Designers, programmers: implicit subjective judgments?
        - Need to check system for implicit biaises
    - Hence, important to inform (and train!) judges (and all other parties) well on the data that is used & functioning of the AI system
      - Problems not always easy to detect (>< limits of a legal data base/search engin)

AI as a tool to facilitate adjudication (19)

- Disadvantages (cont'd)
  - AI tools as 'black boxes'
    - Opacity
      - Design & functioning
      - Crucial that the technical functioning of the tool, the data selected by the algorithm, the decision-making factors and process can be explained in a language that all parties are able to understand
        - Eg *Loomis* case
        - Proprietary nature – business secrets
        - Possible to compensate by a 'meaningful process of reasoning addressing the relevance, strengths, and weaknesses' of the AI system? (Justice Abrahamson)
      - How to address?
        - Some positive examples by public administrations using AI tools for detection of administrative infringements (e.g. illegal parking or illegal renting of holiday housing)

AI as a tool to facilitate adjudication (20)

- Disadvantages (cont'd)
  - Private-public divide: Access to information
    - Business secrecy (supra)
    - Outsourcing to the private sector
    - Cost as an impediment to information
      - Good legal search engines are costly
      - Justice system is (often) underfunded
  - Overstated effectiveness
    - Types of disputes/fields of law
    - The more complex the nature of the dispute and the more open-ended legal norms are, the less likely such tools will lead to a satisfactory prediction

AI-based adjudication: ‘robot judges’?

AI-based adjudication: ‘robot judges’? (1)

- AI tools that, rather than supporting human judges, could replace them
  - ‘Automated adjudication’
    - Fully automated or AI-enabled decision-making?
  - Examples of such ‘robot judges’ are still fairly limited
    - Proposed for **disputes with small values**
    - May be an extension of some **online dispute resolution** mechanisms
  - Inexistent in the field of criminal justice (?)

AI-based adjudication: ‘robot judges’? (2)

- AI tools that, rather than supporting human judges, could replace them
  - Examples
    - **Estonia**
      - Project of the Ministry of Justice, announced in 2019
        - See: https://www.wired.com/story/can-ai-be-fair-judge-court-estonia-thinks-so/
      - Objectives
        - Design a robot judge that could adjudicate small claims disputes < EUR 7.000
        - Appeal possible before a human judge
        - Reduce workload of judges and leave more time to solve more difficult problems

AI-based adjudication: 'robot judges'? (3)

- AI tools that, rather than supporting human judges, could replace them
  - Examples
    - **Estonia** (cont'd)
      - But project overstated!
        - Ministry of Justice, 16 Feb. 2022: "Estonia does not develop AI judge" (https://www.just.ee/en/news/estonia-does-not-develop-ai-judge)
        - Rather:
          - 'looking for opportunities for optimization and automatization of court's procedural steps in every types of procedures, including procedural decisions where possible'
          - Digitalisation of judicial proceedings
          - AI solutions to assist judges (e.g. transcription project using machine learning)

AI-based adjudication: ‘robot judges’? (4)

- AI tools that, rather than supporting human judges, could replace them
  - Examples
    - **China**
      - ‘Smart court SoS’
        - Launched in 2016 as a database…
        - Today’s functionalities
          - Screens court cases for references
          - Provides judges with recommendations on both laws and regulations
          - Also drafts documents
          - Can alter errors in verdicts

AI-based adjudication: 'robot judges'? (5)

- AI tools that, rather than supporting human judges, could replace them
  - Examples
    - **China (cont'd)**
      - Automated adjudication or AI-enabled adjudication?
        - 'If a judge disagrees with the findings of the system, they are required to provide a written explanation' (!!) (>< *Loomis,* opinion Justice Abrahamson)
      - System has access to
        - Databases of the police, the prosecutor's office, other government authorities
        - China's credit rating system(!)

AI-based adjudication: 'robot judges'? (6)

- AI tools that, rather than supporting human judges, could replace them
  - Examples
    - **China (cont'd)**
      - Savings
        - USD 45 billion between 2019-2021
        - Reduction of workload of judges by > 1/3
      - Critics warn for an erosion of the judicial power by technology companies and capital
        - And what about the government?
      - See eg
        - https://aibusiness.com/verticals/ai-helps-judges-decide-court-cases-in-china
        - https://www.scmp.com/news/china/science/article/3185140/chinas-court-ai-reaches-every-corner-justice-system-advising

AI-based adjudication: ‘robot judges’? (7)

- AI tools that, rather than supporting human judges, could replace them
  - Examples
    - **Belgium**
      - Potential for such tools on the basis of the (future) ‘public’ register of judgments in Belgium?
        - Act 16 Oct. 2022
        - Use of AI tools

        - Massive downloading prohibited
        - Allowed: creation of AI tools to support judges in preparing their decisions
          - What kind of ‘support’?
          - Created by whom?

AI-based adjudication: ‘robot judges’? (8)

- Advantages
  - Consistency and reliability
    - >< ‘What did the judge have for breakfast?’
  - More cost-efficient
    - Even if initial investments are high
    - Operating costs are (may be?) lower
  - Speed and effectiveness
    - Especially for repetitive tasks

AI-based adjudication: ‘robot judges’? (9)

- Disadvantages
  - Law is not code
    - Open norms! Value judgments
  - Static decision-making
    - >< eg ECHR = living instrument
  - Independence and impartiality
    - Esp. for AI tools created by the private sector
  - Transparency and contestability
    - Explainability
    - Right to a fair trial

Conclusions

Conclusions (1)

- **Fundamental rights** need to be respected by AI
  - Non-discrimination, privacy and self-determination, transparency, fair trial and effective judicial review
  - Is this really possible in the field of criminal justice?

- AI is a **complement to human intelligence**, *not* a substitute
  - Theory of comparative advantage leads to specialisation
  - Important to keep the human in the loop, at least until AI remains weak

Conclusions (2)

- Law should **adapt** to AI
  - Privacy and security
  - Liability
  - Transparency, expertise and contestability
  - = challenge!
    - EU precursor, but still slow…
- Law **cannot be frozen** by AI

Thank you for you attention!

Questions?

vanessa.franssen@uliege.be