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Summary

PREFACE:
CAPABILITIES AND LIMITATIONS OF AI IN CRIMINAL JUSTICE

By Gert Vermeulen[*]*, Nina Peršak*[**] *and Nicola Recchia*[***]

Artificial intelligence (AI) is impacting our everyday lives in a myriad of ways. The use of algorithms, AI agents and big data techniques also creates unprecedented opportunities for the prevention, investigation, detection or prosecution of criminal offences and the efficiency of the criminal justice system. Equally, however, the rapid increase of AI and big data in criminal justice raises a plethora of criminological, ethical, legal and technological questions and concerns, eg about enhanced surveillance and control in a pre-crime society and the risk of bias or even manipulation in (automated) decision-making. In view of the stakes involved, the need for regulation of AI and its alignment with human rights, democracy and the rule of law standards has been amply recognised, both globally and regionally. The lawfulness, social acceptance and overall legitimacy of AI, big data and automated decision-making in criminal justice will depend on a range of factors, including (algorithmic) transparency, trustworthiness, non-discrimination, accountability, responsibility, effective oversight, data protection, due process, fair trial, access to justice, effective redress and remedy. Addressing these issues and raising awareness on AI systems' capabilities and limitations within criminal justice is needed to be better prepared for the future that is now upon us.

This special issue on 'Artificial intelligence, big data and automated decision-making in criminal justice' presents topical and innovative papers on the above issues, selected following a call for papers.

Krisztina Karsai (Algorithmic Decisions within the Criminal Justice Ecosystem and their Problem Matrix) sets the scene with a critical socio-legal paper drawing from both criminology and criminal law. After identifying and defining needs and possibilities of deploying algorithmic decision-making solutions in the various stages of the criminal justice system, she warns against the technology-driven use of AI, big data and algorithms in criminal justice, mapping six main overarching incompatibility issues or challenges.

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The next four papers centre around *AI and big data in predictive detection and policing*.

Kelly Blount (Applying the Presumption of Innocence to Policing with AI), positing that predictive policing is comparable to traditional criminal investigations in both substance and scope, argues that the presumption of innocence as a fair trial right may be nullified by predictive policing that relies upon former arrest records without taking account of possible dismissal of charges or acquittal.

Julia Heilemann (Click, Collect and Calculate: The Growing Importance of Big Data in Predicting Future Criminal Behaviour) takes a critical stance *vis-à-vis* the underregulated and customer-unfriendly private to public (big) data transfer feeding predictive policing software.

Katherine Quezada-Tavárez (Augmented Reality in Law Enforcement from an EU Data Protection Law Perspective: The Darlene Project as a Case Study), in an applied exercise, examines AI-based augmented reality solutions in law enforcement through the lens of EU data protection law, with a focus on data minimisation, the processing of special categories of data and automated decision-making.

A sectoral application is provided by *Leonardo Simões Agapito, Matheus de Alencar e Miranda* and *Túlio Felippe Xavier Januário* (On the Potentialities and Limitations of Autonomous Systems in Money Laundering Control). They analyse the pros and cons of autonomous or AI mechanisms to prevent, detect and investigate money laundering, particularly in receiving and processing reports of suspicious activities at FIU level, and propose solutions to address challenges relating to both the insufficiency, low quality and inaccuracy of the data that feed the systems and the difficulties in understanding, explaining and refuting the resulting automated conclusions.

Another four papers address *liability issues and jurisdictional challenges prompted by crimes involving AI.*

Anna Moraiti (AI Crimes and Misdemeanors: Debating the Boundaries of Criminal Liability and Imputation), exploring the implications that robots and AI agents create under the scope of the general part of substantive criminal law, argues that, while negligent criminal liability of programmers, producers and/or users may be effectively addressed, the criminal liability of (autonomous) robots and AI agents requires reconsidering anthropocentric legal presumptions and reflecting on the rights of nonhuman agents as well as on the value of non-retributive approaches to crime and punishment.

Beatrice Panattoni (AI and Criminal Law: The Myth of 'Control' in a Data-Driven Society) continues the discussion, pointing at the responsibility gap that is likely to arise when AI agents themselves cannot be held responsible, and human agents, lacking full control over AI systems' autonomous functioning, neither. Against the backdrop of the proposed EU Artificial Intelligence Act, she describes the possible and future criminal policies that will allow avoiding such responsibility gap.

Federico Mazzacuva (The Impact of AI on Corporate Criminal Liability: Algorithmic Misconduct in the Prism of Derivative and Holistic Theories) shifts the discussion away from criminal liability of AI or for AI crimes, and focuses on algorithmic corporate liability, discussing corporate liability and compliance issues resulting from the use of new technologies by corporations. He addresses strict and vicarious liability, the principle of identification, and responsibility based on organizational fault or corporate culture.

Miguel João Costa and *António Manuel Abrantes* (The Challenges of AI for Transnational Criminal Law: Jurisdiction and Cooperation) highlight the inflated level of multi-jurisdictional competence that is likely to result from the complex liability issues for crimes involving AI. They posit that the varying liability models underlying such positive jurisdiction conflicts require rethinking traditional international cooperation concepts such as the dual criminality principle. They also see a renewed role for the executive in the requested state to refuse cooperation in criminal matters on fundamental rights grounds where the use of AI has possibly affected the fairness of the procedure in the requesting state.

The last three papers deal with *AI-assisted and automated actuarial justice or adjudication of criminal cases.*

Alice Giannini (Lombroso 2.0: On AI and Predictions of Dangerousness in Criminal Justice) sketches how the development of new AI and machine learning techniques and their application in both medical and criminal justice settings spark traditional discussions on the use and acceptability of clinical and especially actuarial violence risk assessment tools in criminal courts. She critically assesses the pros and cons of AI-based neuropredictions and virtual forensic experts in criminal justice.

Vanessa Franssen and *Alyson Berrendorf* (The Use of AI Tools in Criminal Courts: Justice Done and Seen to Be Done?) focus on the current and future role of AI in the adjudication of criminal cases. Distinguishing between AI systems that facilitate adjudication and those that could, in part or wholly, replace human judges, they sketch and evaluate the possible (dis)advantages of such systems when used in criminal courts.

Nina Peršak (Automated Justice and Its Limits: Irreplaceable Human(e) Dimensions of Criminal Justice) further advances the discussion on potential drawbacks of automated justice by addressing two dimensions of criminal justice that automated decision-making – if it were ever to be fully implemented – would upend, namely, the affective dimension and the human (interactive) dimension, which encompass essential elements, requirements and values of many contemporary (and traditional) criminal justice systems.