Artificial Intelligence and Policing: First Questions

Elizabeth E. Joh[*]

INTRODUCTION

Artificial intelligence is playing an increasingly larger role in all sectors of society, including policing. Many police departments are already using artificial intelligence (AI) to help predict and identify suspicious persons and places.[1] Increased computational power and oceans of data have given rise to inferences about violence and threats.[2] AI will change policing just as it will healthcare, insurance, commerce, and transportation. But what questions should we ask about AI and policing?

In policing, the term "artificial intelligence"[3] might be best understood to refer to the growing use of technologies that apply algorithms to large sets of data to either assist human police work or replace it. Defined in this way, AI is already a significant factor in police work that, by increasing efficiency and providing insights from big data, can provide real benefits to the police as they tackle crime and enforce the law. If we can provide improvements to medicine, agriculture, and communication, so too might we modernize policing.

But policing is also different from other fields that have embraced AI. The police can detain, arrest, and even use deadly force in the appropriate circumstances. And the special role of the police provokes

1. Elizabeth E. Joh, *Policing by Numbers: Big Data and the Fourth Amendment*, 89 WASH. L. REV. 35, 35 (2014) (listing examples).

2. *Id.* at 38.

3. While there is no single definition, AI generally refers to the use of technology that can perform tasks commonly associated with human intelligence. Another term commonly used in conjunction with AI is "machine learning," which refers to systems that improve their performance on a task over time. *See, e.g.*, MILES BRUNDAGE ET AL., THE MALICIOUS USE OF ARTIFICIAL INTELLIGENCE: FORECASTING, PREVENTION, AND MITIGATION 9 (2018), https://arxiv.org/abs/1802.07228 [https://perma.cc/FEQ6-S9DZ]. *See also* Ryan Calo, *Artificial Intelligence Policy: A Primer and Roadmap*, 51 U.C. DAVIS L. REV. 399, 404 (2017) (noting that there is no "straightforward, consensus definition of artificial intelligence," but that it is "best understood as a set of techniques aimed at approximating some aspect of human or animal cognition using machines").

understandable fears in the case of AI. Some of these concerns are familiar but likely farfetched. While some might worry about the emergence of super-intelligent robots that enslave humans and start wars, such dystopian predictions seem unlikely to be realized anytime soon, if ever.[4] But there are indeed real and pressing questions about the use of AI in our society, culture, and politics—so much so that there has emerged already a growing "algorithmic accountability" movement driven by technologists, scholars, and scientists.[5] These concerns have equal application to the police.

What questions should be asked now about AI in policing? What issues should communities, lawmakers, police departments, and researchers pay attention to? In these remarks I do not attempt to provide a comprehensive list of concerns. Instead, my purpose here is to identify some of the important near-term questions[6] for people new to the issues of AI and unfamiliar with their potential impacts on policing. Some of these issues overlap with questions that arise in other applications of AI; others are particular to the business of policing and security. We need to ask these questions about AI if we wish to maintain confidence in the integrity of policing.

I.   PRIVATE POWER AND PUBLIC ACCOUNTABILITY

The most basic question for the public is whether the police are already employing AI and, if so, what kind.[7] This might be an already widely adopted technology, such as automatic license plate readers. The combination of ubiquitous cameras, plate-reading algorithms, and cheap data storage permit the recording of billions of plates per year.[8] While

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4. *But see Autonomous Weapons: An Open Letter from AI & Robotics Researchers*, FUTURE OF LIFE INST. (2015), https://futureoflife.org/open-letter-autonomous-weapons [https://perma.cc/5R5J-VTV5] (including signatories Stephen Hawking, Elon Musk, and Steve Wozniak) ("Starting a military AI arms race is a bad idea, and should be prevented by a ban on offensive autonomous weapons beyond meaningful human control.").

5. *See, e.g.*, AI NOW INST., AI NOW 2017 REPORT 3 (2017), https://ainowinstitute.org/AI_Now_2017_Report.pdf [https://perma.cc/ADE4-MGVQ] ("We must also ask how broader phenomena like widening inequality, an intensification of concentrated geopolitical power and populist political movements will shape and be shaped by the development and application of AI technologies."). There is a growing call for the inclusion of fairness, accountability, and transparency (FAT) in algorithm design. *See* Danielle Keats Citron, *Technological Due Process*, 85 WASH. U. L. REV. 1249, 1253 (2008) ("Automation generates unforeseen problems for the adjudication of important individual rights."); *Fairness, Accountability, and Transparency in Machine Learning,* FAT/ML, http://www.fatml.org [https://perma.cc/FU2D-WXCQ].

6. For an excellent overview of policy questions for AI more generally, see Calo, *supra* note 3.

7. For a description of some of these technologies, see Joh, *supra* note 1, at 42–55.

8. *See, e.g.*, Kaveh Waddell, *How License-Plate Readers Have Helped Police and Lenders Target the Poor*, ATLANTIC (Apr. 22, 2016), https://www.theatlantic.com/technology/archive/2016/04/how-license-plate-readers-have-helped-police-and-lenders-target-the-poor/479436/ [https://perma.cc/WUQ6-A8EM].

license plate readers have long been a familiar sight, other forms of AI have only recently emerged.[9] A police agency might use predictive algorithms to forecast where crime is likely to occur in the future, or which persons might be at highest risk for crime victimization or perpetration.[10] The near future may see police agencies grow more interested in the possibilities for autonomous drones and other robots.[11] The type of AI employed has significant implications regarding power and accountability in policing.

Answering this question, however, may be surprisingly difficult. Is a police agency legally required to notify local government officials before procuring such a device? Is an agency bound by a nondisclosure agreement that prevents it from sharing details about the AI system that it has procured? Police agencies may not be obligated to provide disclosures, and sometimes may be prohibited from doing so.[12]

Even after such basic questions have been answered, there are more difficult ones about the relationship between the police agency and the company selling the AI system. Was the AI system procured through competitive bidding or through a single source contract? Will the training data be available to the police and the public? Will the algorithm using the training data be similarly available to the police and the public?[13] Does the contract between police agency and vendor confer ownership rights over the data and the analysis to the city, county, or state? And if the training data contains sensitive information, what are the vendor's responsibilities in case of a data breach?

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9. *See, e.g.*, INT'L ASS'N CHIEF POLICE, AUTOMATED LICENSE PLATE RECOGNITION SYSTEMS: POLICY AND OPERATIONAL GUIDANCE FOR LAW ENFORCEMENT 5 (Sept. 2012), https://www.ncjrs.gov/pdffiles1/nij/grants/239604.pdf [https://perma.cc/99PZ-EX9Z] (noting that ALPR technology was invented in 1976 in the U.K.).

10. *See, e.g.*, Mick Dumke & Frank Main, *A Look Inside the Watch List Chicago Police Fought to Keep Secret*, CHI. SUN-TIMES (May 18, 2017), https://chicago.suntimes.com/chicago-politics/what-gets-people-on-watch-list-chicago-police-fought-to-keep-secret-watchdogs/ [https://perma.cc/XM2L-VXYY] (discussing the Chicago Police Department's use of its Strategic Subject List).

11. Some police departments are already piloting guided drones. *See, e.g.*, Kate Mather, *LAPD Becomes Nation's Largest Police Department to Test Drones After Oversight Panel Signs Off on Controversial Program*, L.A. TIMES (Oct. 17, 2017), http://www.latimes.com/local/lanow/la-me-ln-lapd-drones-20171017-story.html [https://perma.cc/6KBT-LD3M].

12. For a discussion of the issues raised by the influence of surveillance technology companies on policing, see Elizabeth E. Joh, *The Undue Influence of Surveillance Technology Companies on Policing*, 92 N.Y.U. L. REV. ONLINE 101 (2017).

13. For a thoughtful review of the issues raised when trade secrets are invoked in the criminal justice process, see Rebecca Wexler, *Life, Liberty, and Trade Secrets: Intellectual Property in the Criminal Justice System*, 70 STAN. L. REV. (forthcoming 2018).

II.   BIAS AND FAIRNESS

Recent research has unearthed the dangers of hidden bias in AI systems. These biases can lie in the training data, algorithms, and overall design of the systems themselves.[14] The introduction of such bias should raise alarms when applied to a criminal justice system that has imposed disproportionate burdens on racial minorities and the poor. It is a commonplace to point out the volumes of research documenting the thousands of discretionary decisions made by police, prosecutors, and judges that have contributed to this result.

By relying on these biases, AI-based systems in policing can reproduce and further amplify these patterns.[15] If an AI system is premised upon racially biased policing data, it will integrate such biases into the analysis provided to the police.[16] Police officers who then find criminally suspicious behavior in those neighborhoods identified by an AI system will confirm these biases. That creates the potential for a "pernicious feedback loop."[17]

Police agencies, communities, and local governments should ask: how can these AI systems address the potential of reproducing and amplifying bias? This should involve not only testing of an AI system before release but also continuous monitoring. Will the company providing the system permit access to researchers to ensure that rigorous and open monitoring will be possible? Will results of findings be provided to those communities that have historically experienced biased policing?

III.   JUSTICE AND NORMS

More broadly, an AI system in policing is not a matter of ordinary procurement.[18] A contract for new police uniforms may not raise concerns, but one for a new AI system should. When AI systems begin to inform basic decisions affecting civil liberties—including surveillance, detention, and arrest—police agencies must be prepared to address questions beyond narrow considerations of cost and ease of use.

A police chief tasked with the responsibility of procuring an AI system will want the product to be cheap, to be easy to learn, and to work.

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14. *See, e.g.*, AI NOW INST., *supra* note 5, at 4 (describing sources of bias).

15. *See id.* at 25.

16. For an insightful study on predictive policing, see Kristian Lum & William Isaac, *To Predict and Serve?*, SIGNIFICANCE, Oct. 2016, at 15, https://rss.onlinelibrary.wiley.com/doi/epdf/10.1111/j.1740-9713.2016.00960.x.

17. CATHY O'NEIL, WEAPONS OF MATH DESTRUCTION: HOW BIG DATA INCREASES INEQUALITY AND THREATENS DEMOCRACY 87 (2017).

18. For an excellent overview of how police procurement of surveillance technology is inextricable from policymaking, see generally Catherine Crump, *Surveillance Policy Making by Procurement*, 91 WASH. L. REV. 1595 (2016).

But what should it mean for an AI system in policing to "work"? How are officers expected to interpret the outputs of an AI system that, for instance, models future threats? Does the AI system provide public safety benefits superior to other traditional approaches to policing?

Whatever benefits an AI system provides to a police agency, are there countervailing costs to public trust, individual privacy, and police legitimacy? Considerations here might include the types of interventions police officers make once they are provided with intelligence. Would a heightened threat score, for instance, result in home visits by the police or simply increased surveillance? What will happen when an AI system used by the police makes errors? Because AI often involves predictions, some of these predictions will inevitably be wrong. The harms of errors made by the police are not just abstract concepts like trust and legitimacy—AI errors will lead to wrongful stops, arrests, and unjustified force.

Are there some applications of AI systems that should not be used at all?[19] There is an active international debate about the introduction of lethal autonomous weapons in war: how they fit into traditional understandings of the rules of engagement and whether they will transform war itself.[20] That debate will inevitably come to domestic policing. Communities and lawmakers can anticipate this and decide whether to preempt the introduction of lethally armed autonomous robots for their own police agencies. Are there other uses of AI that agencies should presumptively prohibit until further research has proven their safety, fairness, and desirability?

CONCLUSION

To be sure, the adoption of AI systems in policing will be uneven, and it is still in its early stages. Some large urban police agencies are experimenting with novel forms of predictive algorithms, while others struggle with funding and conventional policing approaches.[21] The

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19. *Cf.* Calo, *supra* note 3, at 414 ("Without a thorough understanding of what it is that laws, norms, and other safeguards are trying to achieve, we cannot assess whether existing systems are adequate let alone design new systems that are.").

20. *See, e.g.*, Elizabeth E. Joh, *Policing Police Robots*, 64 UCLA L. REV. 516, 526–29 (2016). And in truth, the issue has already arrived in the United States. For instance, the Georgetown Center on Privacy & Technology's report on facial recognition technology points to the growing use of that technology in an environment that is essentially "unregulated." *See* CLARE GARVIE ET AL., GEORGETOWN LAW CTR. ON PRIVACY & TECH., THE PERPETUAL LINE-UP: UNREGULATED POLICE FACE RECOGNITION IN AMERICA (Oct. 18, 2016), https://www.perpetuallineup.org/sites/default/files/2016-12/The%20Perpetual%20LineUp%20%20Center%20on%20Privacy%20and%20Technology%20at%20Georgetown%20Law%20-%20121616.pdf [https://perma.cc/U3RN-RV8Z].

21. *See, e.g.*, Charlie LeDuff, *Inside a Broken Police Department in Flint, Michigan*, NEW YORKER (Feb. 25, 2018), https://www.newyorker.com/culture/photo-booth/inside-a-broken-police-

question now, however, is not whether AI will change policing, but rather, how best to balance its potential benefits while raising and assessing difficult questions of fairness, accountability, transparency, and ethics as the technology is applied to a core government responsibility. AI systems hold the promise of enhancing the abilities of the police to ensure safety and prevent violence. However, without attending to these emerging questions, AI systems also hold the potential to undermine civil rights and trust in the police.

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department-in-flint-michigan ("To save money, the city shuttered its police academy and cut its police force in half. Crime, naturally, doubled.").