



*Daniela Tafani**

INNOVATION LETTER

PREDICTIVE OPTIMISATION SYSTEMS DO NOT WORK, AND THEY INFRINGE RIGHTS. SO WHY DO WE USE THEM?

Abstract

In an increasing number of areas, judgments and decisions that have major effects on people's lives are now being entrusted to Machine Learning systems. The employment of these predictive optimisation systems inevitably leads to unfair, harmful and absurd outcomes: flaws are not occasional and cannot be prevented by technical interventions. Predictive optimisation systems do not work and violate legally protected rights. As Machine Learning is no excuse to break the law, the question is: why do we use such systems?

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SUMMARY

1 Predictive optimisation systems - 2 The “AI ethics” narrative as cultural capture - 3 Machine learning is no excuse to break the law

1 Predictive Optimisation Systems

In an increasing number of areas, judgments and decisions that have major effects on people's lives are now being entrusted to Machine Learning (ML) systems that do not work.¹ In areas such as pre-trial risk assessment, financial services, education, social services and recruitment, the employment of ML systems in assessment and decision making has led to unfair, harmful and absurd outcomes,² as documented in an extensive

* Daniela Tafani is a researcher in political philosophy at the Department of Political Science of University of Pisa.

¹ Inioluwa Deborah Raji, I Elizabeth Kumar, Aaron Horowitz and Andrew Selbst, 'The Fallacy of AI Functionality' (Conference on Fairness, Accountability, and Transparency (FAccT 2022), Seoul, Republic of Korea, June 21-24 2022) <<https://doi.org/10.1145/3531146.3533158>> accessed 2 April 2023.

² Ali Alkhatib, 'To Live in Their Utopia: Why Algorithmic Systems Create Absurd Outcomes' (Conference on Human Factors in Computing Systems (CHI '21), Yokohama, Japan, May 8-13 2021) <<https://ali-alkhatib.com/papers/chi/utopia/utopia.pdf>> accessed 2 April 2023.

body of literature,³ with consequences that can rumble on for a long time, sometimes years, in the lives of victims.

Such flaws are not occasional and cannot be prevented by technical interventions.⁴ On the contrary, they are part and parcel of the normal functioning of ML systems,⁵ which are misused for tasks they cannot adequately perform, or which are completely impossible (unless one believes, as in ancient divination activities, that each individual's future is already written and therefore readable⁶). Using ML systems to detect character traits or predict the actions of individuals has no grounding in science. The use of the term "prediction" is itself misleading: though an ML system can predict words in sequences of text strings, this in no way implies that it can predict the future, or, more specifically, future social outcomes or the actions of particular individuals.

The idea that ML systems are capable of such predictions stems from the notion - essential to superstition and ascribed, in the twentieth century, to the world of psychosis - that all connections are meaningful, regardless of the distinction of causal relationships, that all details are meaningful and everything explains everything.⁷ Like faith in the predictions of astrology,⁸ faith in these algorithmic predictions vanishes as soon as the modern scientific criteria of communicability and reproducibility are applied.⁹ Closer examination reveals that such systems are unreliable in predicting individual events and actions, to the extent that some researchers have suggested using a lottery rather than ML systems to choose between eligible individuals when resources are scarce and it is not possible to use simple computational methods with relevant and explicit variables.¹⁰ If gender predicts lower pay and skin colour predicts the likelihood of being stopped by the police, then in the transition from prediction to decision such social profiling becomes self-fulfilling, legitimising the biases embedded in the initial statistical description by

³ Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy* (Broadway Books 2017); Safiya Umoja Noble, *Algorithms of oppression* (New York University Press 2018); Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor* (St. Martin's Press 2018); White House Office of Science and Technology Policy, *Making Automated Systems Work for the American People* (Blueprint for an AI Bill of Rights 2022) <<https://www.whitehouse.gov/ostp/ai-bill-of-rights>> accessed 2 April 2023.

⁴ Meredith Broussard, *More than a Glitch. Confronting Race, Gender, and Ability Bias in Tech* (The MIT Press 2023).

⁵ Louise Amoore, *Cloud Ethics. Algorithms and the Attributes of Ourselves and Others* (Duke University Press 2020) 115ff.

⁶ Elena Esposito, 'The Future of Prediction: From Statistical Uncertainty to Algorithmic Forecasts' (*Artificial Communication*, 22 June 2022) <<https://artificialcommunication.mitpress.mit.edu/pub/m8xpxiru>> accessed 1 June 2023.

⁷ Paolo Rossi, *Il tempo dei maghi. Rinascimento e modernità* (Raffaello Cortina 2006); Paolo Rossi, *The Birth of Modern Science* (Blackwell Publishers 2001).

⁸ Daniela Tafani, 'What's wrong with "AI ethics" narratives' [2022] Bollettino telematico di filosofia politica <<https://commentbfp.sp.unipi.it/daniela-tafani-what-s-wrong-with-ai-ethics-narratives>> accessed 2 April 2023.

⁹ Sun-ha Hong, 'Predictions without futures' (2022) 61 *History and Theory* 369 <<https://onlinelibrary.wiley.com/doi/10.1111/hith.12269>> accessed 2 April 2023.

¹⁰ Angelina Wang, Sayash Kapoor, Solon Barocas and Arvind Narayanan, 'Against Predictive Optimization: On the Legitimacy of Decision-Making Algorithms that Optimize Predictive Accuracy' (2022) <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4238015> accessed 2 April 2023.



virtue of the supposed objectivity of the algorithm. Prediction thus produces what it purports to predict.¹¹

In areas such as justice, health, education or finance, decisions based on such systems are infallibly prejudicial to legally protected rights, since they operate by grouping individuals into classes determined on the basis of regularities detected in training data and are therefore automatically discriminatory. Rooted in the statistical nature of these systems, the characteristic of forgetting “margins” is structural:¹² it is not accidental and is not due to single, technically modifiable biases. A person can end up on the margins of algorithmic models of normality by virtue of characteristics that are totally irrelevant to the decisions being made.¹³

2 The “AI Ethics” narrative as cultural capture

Fearing a blanket ban, Big Tech have responded to the extensive documentation of the unfair, harmful and absurd consequences of such decisions with a discourse on ethics, financed in an obvious conflict of interest.¹⁴ This is how AI ethics came into being, with the aim of making a merely self-regulatory regime seem plausible.¹⁵ Lobbying thus includes a “cultural capture”: by “colonising the entire space of scientific intermediation”,¹⁶ it succeeds in convincing regulators, rather than (or in addition to) capturing them through incentives, and labelling all those who express concern as retrogrades or Luddites. The nonsense of decision-making based on automated statistics is thus presented as a problem of single and isolated biases, amendable by algorithmic fairness, ie, by technical fulfilment.

The “AI ethics” narrative (or its fungible variants, such as “value alignment” or “algorithmic fairness”) is therefore a commodity,¹⁷ which researchers and universities are

¹¹ Dan McQuillan, *Resisting AI. An Anti-fascist Approach to Artificial Intelligence* (Bristol University Press 2022) 36.

¹² Abeba Birhane, Elayne Ruane, Thomas Laurent, Matthew S Brown, Johnathan Flowers, Anthony Ventresque and Christopher L Dancy, ‘The Forgotten Margins of AI Ethics’ (Conference on Fairness, Accountability, and Transparency (5th ACM Conference on Fairness, Accountability, and Transparency, (FAccT 2022), Seoul, Republic of Korea, June 21-24 2022) <<https://doi.org/10.1145/3531146.3533157>> accessed 2 April 2023.

¹³ Frank Pasquale, *New Laws of Robotics. Defending Human Expertise in the Age of AI* (The Belknap Press of Harvard University Press 2020).

¹⁴ Mohamed Abdalla and Moustafa Abdalla, ‘The Grey Hoodie Project: Big Tobacco, Big Tech, and the threat on academic integrity’ (Proceedings of the 2021 AAAI/ACM Conference on AI, Ethics, and Society (AIES 2021), May 19-21, 2021, Virtual Event (ACM 2021)) <<https://arxiv.org/abs/2009.13676v4>> accessed 2 April 2023.

¹⁵ Rodrigo Ochigame, ‘The Invention of “Ethical AI”. How Big Tech Manipulates Academia to Avoid Regulation’ (*The Intercept*, 20 December 2019) <<https://theintercept.com/2019/12/20/mit-ethical-ai-artificial-intelligence/>> accessed 2 April 2023; Ben Wagner, ‘Ethics As An Escape From Regulation. From “Ethics-Washing” To Ethics-Shopping?’ in Emre Bayamlioglu, Irina Baraliuc, Liisa Albertha Wilhelmina Janssens and Mireille Hildebrandt (eds), *Being Profiled: Cogitas Ergo Sum* (Amsterdam University Press 2018) <<https://www.degruyter.com/document/doi/10.1515/9789048550180-016/html>> accessed 2 April 2023.

¹⁶ Andre Saltelli, Dorothy J Dankel, Monica Di Fiore, Nina Holland and Martin Pigeon, ‘Science, the endless frontier of regulatory capture’ (2022) 135 Futures <<https://doi.org/10.1016/j.futures.2021.102860>> accessed 2 April 2023.

¹⁷ Tao Phan, Jake Goldenfein, Declan Kuch and Monique Mann (eds), *Economies of Virtue: The Circulation of ‘Ethics’ in AI*, (Institute of Network Cultures 2022) <<https://networkcultures.org/blog/publication/economies-of-virtue-the-circulation-of-ethics-in-ai/>> accessed 2 April 2023.

interested in supplying as oil that “greases the wheels of collaboration” with large technology companies,¹⁸ and which companies commission and buy because it is useful to them as reputational capital, generating a competitive advantage. In this discourse, universities have the role and autonomy of a megaphone; it is “the bait through which trust in technology is extracted from publics or users”,¹⁹ an advertising discourse that, because it is declaimed by others, does not even appear as such. Researchers thus become “suppliers of service in this new economy of virtue” and are induced to be “complicit with systems and actors that seek to operationalise ethics to protect their own self-interest”,²⁰ turning ethics into a matter of procedural compliance with an “anemic set of tools” and technical standards.²¹

The function of this discourse is to protect and legitimise a surveillance business model, the core of which is to sell false promises of individual predictions based on algorithmic profiling.²² This business model - which externalises the costs of labour, environmental impact and social harms²³ - actually exploits a “legal bubble”,²⁴ ie, it takes place in violation of legally protected rights, betting on a subsequent legal rescue in the name of the inevitability of technological innovation.²⁵

Since the framing of the discourse is determined by its function, AI ethics is peddled within the perspective of technological determinism and solutionism,²⁶ within the “logic of the *fait accompli*”.²⁷ No consideration is ever given to the possibility of not building certain systems at all, or not using them for certain purposes, because “ethics discourses pre-empt questions regarding the rationale of AI development, positioning investment and implementation as inevitable and, provided ethical frameworks are adopted, laudable”.²⁸

¹⁸ Michael Richardson, ‘Military Virtues and the Limits of ‘Ethics’ in AI Research’ in Phan, Goldenfein, Kuch, Mann (eds) (n 17).

¹⁹ Sarah Pinker, ‘Extractivist Ethics’ in Phan, Goldenfein, Kuch, Mann (eds) (n 17) 39, 41.

²⁰ Tao Phan, Jake Goldenfein, Monique Mann and Declan Kuch, ‘Economies of Virtue: The Circulation of ‘Ethics’ in Big Tech’ (forthcoming) *Science as Culture* <<https://ssrn.com/abstract=3956318>> accessed 2 April 2023; Meredith Whittaker, ‘The steep cost of capture’ (2021) 28 *Interactions* 51 <<https://interactions.acm.org/archive/view/november-december-2021/the-steep-cost-of-capture>> accessed 2 April 2023.

²¹ Jacob Metcalf, Emanuel Moss and Danah Boyd, ‘Owning Ethics: Corporate Logics, Silicon Valley, and the Institutionalization of Ethics’ (2019) 82 *Social Research: An International Quarterly* 449 <<https://datasociety.net/wp-content/uploads/2019/09/Owning-Ethics-PDF-version-2.pdf>> accessed 2 April 2023.

²² Cory Doctorow, ‘How to Destroy Surveillance Capitalism’ (*OneZero*, 26 August 2020) <<https://onezero.medium.com/how-to-destroy-surveillance-capitalism-8135e6744d59>> accessed 2 April 2023.

²³ Kate Crawford, *Atlas of AI. Power, Politics, and the Planetary Costs of Artificial Intelligence* (Yale University Press 2021).

²⁴ Marco Giraudo, ‘Legal Bubbles’, *Encyclopedia of Law and Economics* (Springer 2022) <<https://www.researchgate.net/publication/357702553>> accessed 2 April 2023.

²⁵ Jack Stilgoe, *Who’s Driving Innovation? New Technologies and the Collaborative State* (Palgrave Macmillan 2020).

²⁶ Evgeny Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism* (Public Affairs 2013).

²⁷ Catherine Tessier, ‘Éthique et IA: analyse et discussion’ in Olivier Boissier (ed), *CNIA 2021: Conférence Nationale en Intelligence Artificielle* (PFIA 2021) 22 <<https://hal-emse.ccsd.cnrs.fr/emse-03278442>> accessed 2 April 2023.

²⁸ Alexandra James and Andrew Whelan, ‘“Ethical” artificial intelligence in the welfare state: Discourse and discrepancy in Australian social services’ (2022) 422 *Critical Social Policy* 22, 37 <<https://journals.sagepub.com/doi/abs/10.1177/0261018320985463>> accessed 2 April 2023.



In recent years, the work of demystifying the instrumental nature of the “AI ethics” narrative has been so effective that many have dismissed the whole moral philosophy as useless or harmful - as a toothless alternative to law or empty corporate rhetoric.²⁹

3 Machine Learning is no excuse to break the law

As the “AI ethics” narrative unravels, the Stone Guest it was meant to keep out appears, and many are now arguing that there is an urgent need for drastic legislative intervention. The adoption of machine-learning systems for decision-making purposes in areas relevant to people's lives, such as the judiciary, education or social welfare, is in fact tantamount to creating, by administrative decisions, “almost human rights-free zones”.³⁰

The priority of individual rights specifically protected by law over a generic principle of innovation,³¹ and the evidence of violations of such rights when using ML systems for activities that have a significant effect on people's lives, underpin Frank Pasquale and Gianclaudio Malgieri's proposal. High-risk artificial intelligence systems embedded in products and services should be governed by a regime of “unlawfulness by default”: until proven otherwise, they should be considered illegal, and the burden of proof to the contrary should be on companies, ie, it should be up to the companies to prove, before deployment, that their systems meet “clear requirements for security, non-discrimination, accuracy, appropriateness, and correctability”.³² This would put an end to the general infringement of legally protected rights; indeed, predictive optimisation systems prevent people from accessing resources or exercising rights in ways that are in conflict with existing legal systems.

A step in this direction is the recent introduction of a “Fundamental rights impact assessment for high-risk AI systems” in the Proposal for a regulation of the European Parliament and of the Council on harmonised rules on Artificial Intelligence (Artificial Intelligence Act)³³. It remains to be seen whether the final draft will retain this novelty

²⁹ Elettra Bietti, ‘From Ethics Washing to Ethics Bashing: A View on Tech Ethics from Within Moral Philosophy’ [2021] SSRN Electronic Journal <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3914119> accessed 2 April 2023.

³⁰ Philip Alston, *The Digital Welfare State - Report of the Special Rapporteur on Extreme Poverty and Human Rights* (UNGA A/74/493, 11 October 2019) <<https://daccess-ods.un.org/access.nsf/Get?OpenAgent&DS=A/74/493&Lang=E>> accessed 2 April 2023.

³¹ On the innovation principle as a mask behind which large economic actors claim the protection of their concrete interests, see Saltelli, Dankel, Di Fiore, Holland and Pigeon (n 16).

³² Frank Pasquale and Gianclaudio Malgieri, ‘From Transparency to Justification: Toward Ex Ante Accountability for AI’ (2022) 8 (33) Brussels Privacy Hub Working Papers <<https://brusselsprivacyhub.com/wp-content/uploads/2022/05/BPH-Working-Paper-vol8-N33.pdf>> accessed 2 April 2023.

³³ Draft Compromise Amendments on the Draft Report Proposal for a regulation of the European Parliament and of the Council on harmonised rules on Artificial Intelligence (Artificial Intelligence Act) and amending certain Union Legislative Acts, (COM(2021)0206 - C9 0146/2021 - 2021/0106(COD)), May 16, 2023, <<https://www.europarl.europa.eu/resources/library/media/20230516RES90302/20230516RES90302.pdf>> accessed 1 June 2023.

or instead bear the marks of the intervention of the “lobbying ghost in the machine” of regulation.³⁴

Other banning proposals are based on the technical analysis of the characteristics of ML systems. Predictive optimisation systems should be banned outright, where decisions have major consequences on people's lives, because they are based on false promises.³⁵ For the same reason, the narratives spun by those who claim, for commercial purposes, that they exist should be equated with misleading advertising. The US Federal Trade Commission reminds companies of this and makes explicit reference to predictive optimisation systems:

“Are you exaggerating what your AI product can do? Or even claiming it can do something beyond the current capability of any AI or automated technology? For example, we’re not yet living in the realm of science fiction, where computers can generally make trustworthy predictions of human behaviour. Your performance claims would be deceptive if they lack scientific support or if they apply only to certain types of users or under certain conditions”.³⁶

In stark contrast to the position of large corporations, the Federal Trade Commission has stated that technology products are subject to existing regulations³⁷. The inability, for technical reasons, to comply with legal requirements is not a reason to declare oneself exempt from the same laws and ask for new ones, but - as in any other sector faced with a finding of illegality - a reason not to market such products at all.

In areas such as justice, health, education or finance, where we are entitled to an explanation of the decisions that affect us, it should be mandatory to use systems that, unlike ML systems, are based on explicit models and interpretable variables, and “data supply chains” that are designed, generated and maintained, in each case, in a manner consistent with the system being built.³⁸

Such operations would seem to be suggested by common sense, but they are not implemented, because the costs are greater than capturing huge amounts of data through surveillance mechanisms, and because transparent systems, without the magical aura of algorithmic clairvoyance, could not be sold as predicting the future. Companies therefore choose to include, among the costs to be externalised, those arising from the social harms produced by predictive optimisation systems.

³⁴ Corporate Europe Observatory, ‘The lobbying ghost in the machine. Big Tech’s covert defanging of Europe’s AI Act’, February 23, 2023, <<https://corporateeurope.org/en/2023/02/lobbying-ghost-machine>>.

³⁵ Wang, Kapoor, Barocas and Narayanan (n 10).

³⁶ Michael Atleson, ‘Keep your AI claims in check’ (*Federal Trade Commission business blog*, 27 February 2023) <<https://www.ftc.gov/business-guidance/blog/2023/02/keep-your-ai-claims-check>> accessed 1 June 2023.

³⁷ Alvaro M. Bedoya, ‘Early Thoughts on Generative AI. Prepared Remarks of Commissioner Alvaro M. Bedoya, Federal Trade Commission Before the International Association of Privacy Professionals’, April 5, 2023, <<https://www.ftc.gov/news-events/news/speeches/prepared-remarks-commissioner-alvaro-m-bedoya-international-association-privacy-professionals>> accessed 1 June 2023.

³⁸ Nello Cristianini, ‘Shortcuts to Artificial Intelligence’ in Marcello Pelillo and Teresa Scantamburlo (eds), *Machines We Trust. Perspectives on Dependable AI* (The MIT Press 2021) <<https://philpapers.org/archive/CRISTA-3.pdf>> accessed 2 April 2023; Idem, *The Shortcut. Why Intelligent Machines Do Not Think Like Us* (CRC Press 2023).



The divide is not, therefore, between respect for human rights and the principle of innovation. It is between respect for rights and the business model of the monopolies of intellectual capitalism.³⁹

Moreover, a radical defence of individual rights through antitrust laws would also promote innovation because those same monopolies crush any beneficial, disruptive innovations that do not fit their business model and thus mainly promote toxic innovation that extracts or destroys value instead of producing it.⁴⁰

In short, predictive optimisation systems do not work and violate legally protected rights.

So, I ask: why do we use them?

³⁹ Ugo Pagano, 'The Crisis of Intellectual Monopoly Capitalism' (2014) 38 *Cambridge Journal of Economics* 1409 <<https://ssrn.com/abstract=2537972>> accessed 2 April 2023; Tim Wu, *The Curse of Bigness. Antitrust in the New Gilded Age* (Columbia Global Reports 2018); Marco Giraudo, 'On legal bubbles: some thoughts on legal shockwaves at the core of the digital economy' (2022) 18 *Journal of Institutional Economics* 587 <<https://doi.org/10.1017/S1744137421000473>> accessed 2 April 2023; Shoshana Zuboff, 'Surveillance Capitalism or Democracy? The Death Match of Institutional Orders and the Politics of Knowledge in Our Information Civilization' (2022) 3 *Organization Theory* <<https://doi.org/10.1177/26317877221129290>> accessed 2 April 2023.

⁴⁰ Ariel Ezrachi and Maurice E Stucke, *How Big-Tech Barons Smash Innovation - And How To Strike Back* (HarperCollins 2022); Thomas Hoppner, 'From creative destruction to destruction of the creatives: innovation in walled-off ecosystems' (2022) 1 *Journal of Law, Market & Innovation* 10 <<https://www.ojs.unito.it/index.php/JLMI/article/view/6951>> accessed 2 April 2023.