Horizon Scanning Series

The Effective and Ethical Development of Artificial Intelligence: An Opportunity to Improve Our Wellbeing

Indigenous Peoples

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AI and Indigenous Peoples
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Indigenous jurisprudence scholar, Christine Black, posits that artificial intelligence might be a less confronting notion from an Indigenous standpoint than it is from a Western perspective. Where the latter typically positions artificial intelligence as a threat to individual autonomy, she contends that Indigenous people might accept artificial intelligence as a "being" or "something that we are inside of" (Black 2018). Black defines Indigenous jurisprudence as derived from patterns of law that rest in the land, whereby a sacred and dynamic relationship between people and the non-human (land, animals, *physis*) shapes how people carry out their responsibilities and gain rights (Black 2011). Therefore, the notion that there can exist a non-human decision-making system that knows us, possibly better than we know ourselves, is familiar to Indigenous peoples. For Black, finding ways to know our responsibilities and obligations in relation to a law in flux is a productive starting point for how to approach artificial intelligence.

Black is referring to a future in which machines can create their own ways of learning that are more efficient than our own, but which may make decisions that affect our agency. Such artificial intelligence might be responsive to group norms in ways that existing technologies are not, or generate supra-state governance through their decision-making abilities (Bratton 2015). When viewed in relation to the colonial encounter, as well as recent intrusions of the state into the lives of Aboriginal and Torres Strait Islander peoples, it is entirely conceivable that artificial superintelligence could provide better outcomes for Indigenous people than settler state regimes have imposed or promised.

Such possibilities, however, need to be differentiated from today's narrow artificial intelligence systems. AI can be grouped into three broad categories: narrow (or weak) AI, general (or strong) AI, and artificial superintelligence. Narrow AI can involve pattern recognition to make predictions based on large datasets, or use machine learning to adapt an algorithm as more information becomes available. General AI might learn and solve complex problems in changing environments as well as humans do. Superintelligence (Bostrom 2014), which is theoretical at this point in time, can exceed human intelligence on all tasks.

Some existing AI are very much "of the state"; deployed for the administrative and management purposes of government and public services, and built from data that is collected and stored in public institutions. These pose challenges for Indigenous people related to gaps and biases in data, how such services are accessed, and whether existing social inequalities influence who benefits from their deployment. While negative outcomes of these technologies may be felt by many vulnerable groups (Eubanks 2017), an important issue for Indigenous peoples is the extent to which artificial intelligence impacts on their right to self-determination.

Self-determination

The United Nations Declaration on the Rights of Indigenous Peoples affirms the right to self-determination (article 3), and extends this right to self-government and autonomy in relation to internal and local affairs (article 4). In Australia, self-determination refers both to independent, territorial sovereignty, as well as informal practices of inclusion in decision-making processes by those affected (Ford 2013). What does self-determination mean when decision-making is undertaken by machines?

Self-determination in this context might include involvement in the design of the technology, as well input into what artificial intelligence is used for. Artificial intelligence is deployed to create efficiencies in how things are done, or to generate new ways of doing (for instance by recognising otherwise unseen patterns in health data that could lead to improved services in particular localities). A starting point is to recognise that Indigenous polities may have specific priorities, including development agendas that are different from the state. These can be overlooked in systems and technologies based on achieving efficiency of delivery for the broader population.

In one controversial case involving algorithmic prediction, economists in New Zealand used large government datasets to develop a predictive risk model intended for early intervention in the area of child protection (Oak 2015). An ethical review by a Māori ethics board found that Māori people were disproportionally represented in the risk group (explained by correlations with components of the model such as poverty where Māori are over-represented [Blank et. al. 2015]). As a result, there was a risk that Māori people or communities might be subject to hyper-vigilance, including the removal of Māori children not at risk. Even if such a model were found to succeed in creating social benefits for the community (in this instance by mitigating child abuse), a Maori-centred approach should involve Māori at all stages "from design to the follow-up of whānau [family/political unit] and the evaluation of the programme" (Blank et al. 2015, 10).

Does self-determination therefore mean that Indigenous people should opt-out of artificial intelligence systems that they have no control over? For some, self-determination can only be achieved in tandem with social wellbeing (Pearson 2011; Sutton 2009). If done poorly, self-determination policies can create a void, leaving communities ill-prepared and potentially more dependent on external authorities rather than autonomous. For instance, anthropologist Diane Austin-Broos (2013) argues that self-determination should be viewed as a "matter of economy and the forms of social-material life that a people start to address when their wold is overturned" (119), observing that some socio-economic dilemmas have been left unresolved even as land rights have been addressed. Self-determination in the design and deployment of artificial intelligence might therefore require attention to questions of power, but also the potential disadvantages of opting out when health, social and economic wellbeing is at stake, and how that in turn can restrict people's freedoms.

Data sovereignty

The issue of self-determination has been most forcefully articulated in relation to the 'Indigenous data sovereignty' movement (Kukutai & Taylor 2016). Indigenous data sovereignty is a response to the intensification of data collected about Indigenous people and issues of importance to them, whether by commercial, government, NGOs, research entities, or international agencies. It is primarily concerned with how data is collected, accessed, stored, and used, and entails "managing information in a way that is consistent with the laws, practices and customs of the nation-state in which it is located" (Snipp 2016, 39). To date, the focus has mostly been on national surveys such as the Australian Census of population and housing (although the Census has developed methods specific to Indigenous data collection needs, the resulting data is only available in aggregate form for privacy reasons, which means that use of that information for local purposes is not possible). Further work is needed to understand how and whether data sovereignty could be achieved with respect to artificial intelligence, particularly when AI systems create models and inferences from sources that communities themselves might not have the ability to see or use and which may be incomplete. For instance, economic data might fail to show informal economies, where particular social norms influence how resources are accrued and distributed. Definitions of household and family may also differ from those assumed in data processing. Families might therefore share resources in ways that may be invisible in electronic transaction records, or even utility bills, leading to incorrect assumptions about people's vulnerability.

Moreover, to expect that we can program for such differences overlooks the fact that some of the challenges reside in social and political domains rather than in the process and processing of data. For instance, the definition of Indigenous identity various across datasets, administrative regimes and cultures. Communities may have social means of deciding who is included, but these systems do not necessarily scale to big data or data matching technologies. The concept of data sovereignty also raises questions of rights and ownership with respect to algorithmic prediction and data mining performed by commercial companies, including data derived from device use, wearable technology or sensors embedded in the built environment (the 'smart city' and 'smart home'). McQuillan (2017) writes that "Data capture is, in a real sense, the capture of a territory. As in historical colonialism, the effect of capture is to shift the locus of control and decision making" (101).

Artificial intelligence might also be used to benefit Indigenous people specifically, including in the preservation and revival of Indigenous languages. Researchers in the ARC Centre of Excellence for the Dynamics of Language are working with Google to build AI models that can support linguistic work, commencing with six Australian Indigenous languages — Bininj Kunwok, Kriol, Mangarayi, Nakkara, Pitjantjatjara, Warlpiri and Wubuy — plus five languages spoken in the Asia Pacific (Biggs 2015).

Digital inclusion

The extent to which people benefit from artificial intelligence depends in part on access to digital technologies. Lack of access, or the cost of access, may impact on people's ability and willingness to use services. On the other hand, artificial intelligence applications such as

chatbots might help overcome existing barriers to use of online services related to digital skills and abilities.

Measures of digital inclusion such as the Australian Digital Inclusion Index (ADII) suggest that Aboriginal and Torres Strait Islander people are accessing the internet less than the population as a whole. Although the number of Aboriginal and Torres Strait Islander people accessing the internet (in non-remote areas at least) is rising at a fairly rapid pace, other differences in internet use may impact on the extent to which people use artificial intelligence services. For instance, a key insight to be drawn from the ADII is that Aboriginal and Torres Strait Islander people in non-remote areas are much more likely to be mobile-only users; in 2017, half of Aboriginal and Torres Strait Islander people surveyed were mobile-only (49%), while one in five of the total were mobile-only (21.3%) (Thomas et al. 2017). Qualitative studies and surveys conducted in remote Australia also show that people are much more likely to acquire internet connections if they live in areas with mobile reception, and that most prefer pre-paid retail options over post-paid (Rennie et al. 2016). Some studies have also found that people may fall in and out of credit (Rennie et al. 2018), or struggle to maintain internet access (Radoll & Hunter 2017).

Digital inclusion is a complex issue, in that internet use can vary according to the social norms and choices of particular groups regardless of available infrastructure. Another subtle outcome of digital inclusion is that as more people use the internet, the more likely it is that services will move online. Those who remain without internet access (or with intermittent access) will experience greater difficulties as face-to-face services are removed or reduced. Unfortunately, the same people who are excluded from online services are also likely to be the most vulnerable and in need of social support services. On the other hand, those who are excluded due to factors such as digital skills, language or disability may find that artificial intelligence resolves some of these barriers.

Summary

Much of the debate on the social and ethical implications of artificial intelligence has been concerned with the quality of data and design, and how data-driven systems can perpetuate unequal power relationships or create new vulnerabilities. Prior attempts to implement programs that predict the behaviours of whole groups and place restrictions on them – such as income quarantining as originally applied under the Northern Territory Intervention – reveal the kinds of ethical and social quandaries that can arise. The issue of self-determination therefore extends to data, in that Indigenous people need to be included in the management of data that may be used for decision-making purposes. It is also possible that artificial intelligence might enable more appropriate services for Indigenous peoples, including services in language, or which accommodate group needs and norms in ways that those designed for the majority cannot. In health, artificial intelligence might enable better diagnosis and provide more targeted healthcare. As artificial intelligence develops, it is also important to consider how Indigenous knowledge systems might inform their deployment, as well as how we conceive of the governmental and philosophical implications.

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