

**BOTS, BIAS, AND BORDERS:
THE EFFECTS OF AUTOMATED DECISION MAKING ON
CANADIAN IMMIGRATION SYSTEMS**

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ABSTRACT

When used in public programs, AI-based technologies, whether through automated decision-making systems or through surveillance software (i.e., facial recognition), act as sieving tools for the state by extracting, sorting, and creating social categories of the “good” subject and the “bad” or even non-subject. The convergence of AI-based decision-making and algorithmic governance with new and emerging immigration technologies enacts and furthers racial statecraft. Questions of race and racialization have become even more pronounced as states seek to pre-empt risk through “smart” border technologies in the post 9/11 era. Given that discourses around refugees and asylum-seeking cannot be divorced from projects of sovereignty, the deployment of AI-powered border technologies must be studied in relation to the enforcement of sovereignty through technological bordering regimes and global geopolitical hierarchies. Within Canada, the deployment of AI tools in border technologies is implicated along several registers: neocolonial geo-political asymmetries of power; the low rights environments for displaced persons; and statelessness, which has become both a basis for data extraction and the means to mitigate the mobility of asylum and refugee claimants. This dissertation argues that the nature and operations of AI systems in the context of Canadian immigration policy and practice both shapes and is shaped by social categories of difference such as race, gender, and citizenship status. The proliferation and use of AI in Canadian immigration signifies a mode of statecraft through the consolidation of the state’s AI capabilities and power as expressed through innovation in and desire for a strong domestic AI economy and market. Finally, it argues that Canada’s use of AI and digitally mediated decision making further exacerbates ongoing issues of racialized and

gendered discrimination, further prompting the need for social innovation over technosolutionism.

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CHAPTER 1: INTRODUCTION

STATEMENT OF INQUIRY

Immigration authorities across North America and Europe are increasingly relying on digitally mediated methods of screening refugee and asylum seekers, going as far as relying on their social media presence to obtain information on the applicant's travel routes, photos and networks of friends, presenting grave concerns (Brekke and Staver, 2019; Molnar, 2019; Oberhaus, 2018). Since 2014, the Canadian federal government has been using systems of predictive analytics that automate and evaluate immigration and visitor applications which were previously at the discretion of human officers (Molnar and Gill 2018, CBC, 2018). Mechanisms of artificial intelligence (AI) rely on algorithms to make decisions. Algorithms are a set of instructions for a computer or technological device that are programmed to solve a given problem or implement a task (Garcia, 2016). The concerns surrounding algorithmic or AI based functions surround its means of reaching decisions based on previous decision patterns and the makeup of its training data. This training data is often constructed of racial and gendered overrepresentations (i.e., incarceration and poverty rates) (Garcia, 2016, Seaver, 2017, Dourish, 2016). Despite these concerns, and a (2022) IPSOS poll highlighting that the Canadian public is the least enthusiastic of those globally surveyed in relation to the adoption of AI, in 2017 the Immigration and Refugee Protection Act (IRPA) was modified to include a section on electronic administration as follows:

Decision, determination or examination by an automated system – Section 186.1(5) For greater certainty, an electronic system, including an automated system, may be used by the Minister to make a decision or determination under this Act, or by an officer to make a decision or determination or to proceed with

an examination under this Act if the system is made available to the officer by the Minister.

Requirement to use electronic means – Section 186.3(2) The regulations may require a foreign national or another individual who, or entity that, makes an application, request, or claim, submits any document, or provides information under this Act to do so using electronic means, including an electronic system. The regulations may also include provisions respecting those means, including that system, respecting the circumstances in which that application, request or claim may be made, the document may be submitted, or the information may be provided by other means and respecting those other means ([Part 4.1, Immigration and Refugee Protection Act, S.C. 2001. C 27 amended 2017](#)).

Under the amended legislation, immigration officers are authorised to use automated systems to make and reach decisions. For Karas and Goel, Immigration, Refugee and Citizenship Canada (IRCC)’s increased use of automation “is due to the growth in temporary resident applications, including study permits, work permits, and temporary resident visas (TRVs) (2023)”. Here the intention behind the use of automation tools such as Chinook (a Microsoft Excel tool) and Advanced Data Analytics (ADA) is “to improve administrative decision – making processes, assist or replace personnel, increase efficiency and reduce the processing time for applications (Karas and Goel, 2023).” Above all, the authors appraise AI as having the capability to “improve the integrity of the Canadian immigration system”, where “AI algorithms can be used to detect fraudulent applications and identify potential security threats (Karas and Goel, 2023)”. AI and its algorithms act as an informational sieve of immigrants, mobilizing the constructs of a desirable subject vs. non desirable subject. These enact racialized and classed notions of immigrants dichotomized into desirable vs undesirable groups, resulting in historic and ongoing differential reception of immigrants to Canada (Abu-Laban et.al, 2022). Of priority here is how such technologies can “analyse an applicant’s social media presence to detect any red flags or warning signs, such as evidence of

terrorism or criminal activity” making sure only those “truly eligible” are admitted to Canada (Karas and Goel, 2023). While the sheer range of AI’s ability regarding multi-factoral analysis of an applicant’s data, social media or their digital presence as a whole is undisputed, it is the IRCC’s insistence that it “allows immigration officials to make more informed and objective decisions, reducing risk of discrimination or bias” that is cause for concern (Karas and Goel, 2023). Here, the algorithmic capture of (im)migrants and the practice of risk detection is anchored in social categories of difference that enact the very biases that the IRCC claims to transcend through the integration of AI and digital mediums.

The apparent promise of AI is not concentrated in the immigration sector alone. The literature on AI and Data ‘for good’ initiatives illustrate the ways in which technological innovations are expediting developments in and applications of AI (Aula and Bowles, 2023). Microsoft’s philanthropic AI for Good Lab is engaged in AI research meant to improve responses to pressing social issues. Some examples of this work include the use of AI for medical diagnostic imaging for cases of chronic osteitis (a bone density disease and retinopathy (a common cause for deafness and blindness respectively among children). Another example, is the use of AI to classify images where human specialists are scarce, thereby benefitting under-resourced children and medical workers (Weeks, 2024; Robinson, Fobi, and Ortiz, 2024; Xu and Aerts, 2024 ; Gholami, Knippenberg, and Campbell, 2024; Bricker et.al, 2024).

For Gholami (2024), AI frameworks leveraging satellite imagery can offer timely support to emergency responders in the event of natural disasters. Having developed a “convolutional neural network model that uses high – resolution satellite imagery”,

Gholami illustrates how AI can be used to localize and score damage, aiding humanitarian intervention and rebuilding efforts (2024, 135). Robinson, Fobi, and Ortiz (2024) used similar methods to assess damage from the 2023 earthquake in Turkey, partnering with Turkey's Ministry of Interior Disaster and Emergency Management Presidency to deliver damage estimates for nearly 4,000 buildings. Other examples within the AI 'for good' literature are listed as follows: Using machine learning methods trained on high frequency household surveys to identify and predict levels of food insecurity in real time (Gholami, Knippenberg, and Campbell, 2024); Using AI to assess dermatological imaging for leprosy in vulnerable populations in the global South (Xu and Aerts, 2024); And using a natural language processing (NLP) supported chatbot to deliver conversational support for cigarette smoking cessation (Bricker et.al, 2024). While valuable, these accounts do not interrogate the concentration of knowledge and technological capabilities within the West. There is also the question of the resulting power (through such interventions) that Western academia, states, and institutions gain, nor the resulting power imbalances of such interventions.

As we begin to rely on AI, we also risk inserting human and socially constructed differences into the codes that will make decisions for generations to come, reproducing inequalities that proponents of AI often claim these technologies have transcended. For Garcia (2016), this means that when an algorithm or its training data has encoded racial and gendered differences, the most basic function of the technology will then reinforce said difference across its applications. Scholars warn that without examining the data, code, and without actively monitoring the outcomes of AI, its applications and emerging technologies can reproduce social constructions of race based, sexual, and or gendered

difference (Garcia, 2016; Noble, 2018; Zou and Schiebinger, 2018; Kaplan, 2018). For Jasanoff, “science and technology operate, in short, as political agents” (Jasanoff, 2004). Jasanoff delineates the co-production of science and technology and power in her reference to major moments in political history, where technoscientific achievements such as bombs, scientific medicine, genetic manipulation and computers have all defined or redefined what we know of nationhood, public and private, citizenship, and the possibilities of freedom and control (Jasanoff, 2004). It is with this understanding of the convergence of politics, science, and technology that this dissertation approached the offloading of previously human-based immigration services such as interviews and other face to face interactions that would determine entry onto AI-based technologies in Canada’s immigration system. Analyzing the nationalization of Canada’s AI strategy, in the context of the global AI race, this analysis illustrates the role of science and technology in state building, as well as in shaping conceptions of citizenship and subject formation. This work also interrogates how instances of innovation signal leadership on a global scale, and why AI ought to be reconceptualized as an expression of statecraft in relation to its sieving logic(s) and use in immigration processes.

At the core of the contemporary and global AI race are grand technological breakthroughs that translate into “leadership” in the globalized field, which is then financialized, as said “leadership” attracts large investments from corporations and governments alike (Snyder, 2019; Jasanoff, 2004). The governments of the global North, specifically Canada, now openly compete to attract investment in AI technologies by restructuring institutional policies to be more business friendly. Within these processes, technology, politics, questions of state craft, citizenship, and capital converge. All

countries, whether they become leaders in the field of AI, will inevitably be impacted by the “AI revolution” (Harari, 2019). Given the colonial axis upon which global ordering is segmented, AI will have a differential impact on the global South. This in turn brings into question its use to engage immigrations, which disproportionately consists of communities from the global South. Innovations in the field of AI require large amounts of data to simulate real life problems, intensive physical labour (performed disproportionately by workers in the global South) for minerals foundational to crafting AI systems and its computational apparatus, as well as coders, designers, producers, and copious amounts of energy. While it takes a global village and its resources to create and deploy AI systems, the benefits and concentration of power in this field remain anything but equitable. Gupta, Rosenfeld, and Yu (2023) highlight these inequalities, referencing the ‘AI divide’ between the global North and the global South, furnished primarily by the geographic concentration of social and economic benefits of AI in the North. States in the global South then become susceptible to political and economic discipline and regulation as global North states with the access to AI technologies get to determine the course of evolution for others (Arun, 2020). This is because the global plane of innovation is in no way ahistoric, it operates upon a colonial axis, operationalizing the continuities of power asymmetries between the global North and South (Arun, 2020; Madianou 2019). Illustrating the global North’s dominance in AI technologies, in 2017, the government of Canada created the Pan-Canadian Artificial Intelligence Strategy (PCAIS) to lead and develop the world’s first national AI strategy (Cifar.ca). With funding amounting over 441 million Canadian Dollars (CAD) in investments and 54 industry partnerships, the PCAIS has four objectives as follows:

1. To increase the number of outstanding artificial intelligence researchers and skilled graduates in Canada.
2. To establish interconnected nodes of scientific excellence in Canada's three major centers for artificial intelligence in Edmonton, Montréal, and Toronto.
3. To develop global thought leadership on the economic, ethical, policy and legal implications of advances in artificial intelligence; and,
4. To support a national research community on artificial intelligence (Cifar.ca).

It is important to note that while PCAIS is a charitable non-profit government initiative, it is also funded by the Royal Bank of Canada Foundation and Facebook (now Meta) (Cifar.ca). This funding partnership demonstrates the convergence between corporations, the government, and national monetary institutions in the advancement of AI research and commercialization. Understanding Canada's unique history and development trajectory as a former British colony and White dominion, the analysis of Canada's participation in this race must then be situated and analyzed in conjunction with its legacies of colonialism, immigration, the constructions of an ideal subject vs. non-subject, and hierarchies of global international order. Given Canada's history of resettling refugees, its reliance on immigration for labour, economic and population growth, an analysis into Canada's use of AI in immigration processing as a sieve for immigrants presents a critical juncture for the study of state making and sovereign grounds keeping.

RESEARCH QUESTIONS

This study's research questions are as follows: i) what kinds of challenges does the proliferation and use of artificial intelligence (AI) in the Canadian immigration system pose; ii) how does the nature and operation of AI shape inequality along the axis of race, gender, and citizenship status, and how are these categories shaped by the same? ; and iii) what are the implications of these processes for women and racialized persons in the

immigration system, and in relation to the automation of immigration decision making in Canada?

OBJECTIVES

The objectives of this dissertation are: (1) to document the use of AI in (im)migration; (2) to examine and challenge the epistemic concentration of the contemporary field of AI studies, and undertake an interdisciplinary analysis to bridge the gaps in the literature at present; and (3) to investigate the impact and responses to the integration of AI in Canadian immigration processes and its implications on the Canadian public sphere. I investigate the forms and applications of AI technologies and their varying applications, mobilization processes, the purposes for which they are used, and the effects that they have on immigrating populations. This project will center on technologies of digital automation and AI, by bridging literatures from the disciplines of Computer Science (Buolamwini & Gebru, 2018; Mohamed et.al, 2020; Raji et.al, 2021), Science and Technology Studies (Jasanoff, 2004; 2017; Seaver, 2019; Crawford, 2021), Political Science, Postcolonial Studies, and International Relations (Agathangelou, 2017; Mbembe, 2019 ; Abu – Laban et al, 2022) to trace the effects of digital transformation and AI integration in modes of governance and public administration. The result is a nuanced analysis of how technologies differentially engage and shape immigrant experiences and its impact. This interdisciplinary study seeks to transform how racialized minority subjects are engaged with by AI in Canada and more broadly North America, especially in the contemporary era of rapid AI proliferation and advancement.

GEOGRAPHIC JUSTIFICATION: WHY CANADA?

Canada serves as the site of analysis given its distinct and historical posturing as a peacekeeping, humanitarian, and multicultural state. At present, “Canada boasts one of the world’s highest net migration rates (Brunner and Tao, 2024).” Canada, and Canadians, pride themselves in their distinct national identity as peacekeepers and humanitarians. Canada’s humanitarian efforts are evidenced through its refugee resettlement and immigrant reception programs, and most recently through the IRCC’s 2018 campaign #ImmigrationMatters used to promote a positive and factual public perception of immigration (Government of Canada, 2024). The Canadian state has a long history of distinguishing itself from the United States and other nations as promoters of human rights, and as curators of an ‘accepting’ state image through the resettling of refugees and immigrants (Kymlicka, 2003; [International.gc.ca](https://international.gc.ca)). Informed by Kymlicka’s *Being Canadian* (2003), Canadian identity, constructed both internally and externally, attaches great importance to its perception by other countries, where concerns of Canada’s status in the global order tend to “affect the way internal dimensions of Canadian identity are negotiated (359, Kymlicka, 2003)”. For Canada, migration plays a key role in the formation of its national identity. Immigration and national identity “exist in a symbiotic relationship”, and this relationship is most evident in “immigrant nations” like Canada, where “immigration is part of the national ethos (Dauvergne, 2005)”.

Thus, Canada is the ideal site for this study given the converging nature of both its global image as a multicultural state, and its strategic promotion of internal diversity. As of 2024, Canada has “one of the highest proportions and total numbers of international students globally”, and in the context of Canadian immigration objectives,

these students were viewed as “ideal immigrants for both their economic contributions and formation of a pool of potential future immigrants” as exemplified by the “targeted permanent resident (PR) pathways” for international students and post-secondary study permit holders (Brunner and Tao, 2024). However, this too perspective has faced a major policy turn in 2024, as the government of Canada announced sweeping changes to its International Student Programs, reducing the number of eligible international students by thirty five percent for two years ([IRCC, 2024](#)). Additionally, the cost of living requirement for study permits has doubled; applicants must now show they are in possession of a minimum of \$20,635 CAD instead of the previous \$10,000 CAD to support themselves during their studies ([IRCC, 2024](#)). While literature on Canadian migration and national identity exists, just as there have been studies on Canada’s innovation goals, neither are read together nor consider their shared goals of state-making both internally and on the global stage. The conceptualization of Canadian national identity, its migration programs, its refugee resettlement efforts, and its goals for science and technological primacy all operate with the same objectives of state-making. Within this context specialized Canadian immigration programs that target and streamline immigrants for specific objectives, act as an example of the ongoing project of state making. Specialized streams include the Temporary Foreign Worker program, the IT talent stream, and most recently the AI talent stream. The shared interests of state and global identity formation thence urge the study of the convergence between Canada’s efforts for leadership in AI and its status as an internally diverse and immigrant nation.

THEORETICAL FRAMEWORK

Prior to the discussion of the theoretical framework guiding my theory and inquiry, it is important to briefly review some of the critical theories employed in my analysis of AI. At present, the critical studies of AI and algorithmic decision making are predominantly situated within the liberal-legal frameworks with calls for transparency and regulation of AI usage in the public sector (Molnar and Gill, 2018; Nalbandian, 2021; Yeung et al, 2021; Molnar, 2019; Bircan and Korkmaz, 2021). For Yeung et al, this takes the form of “human rights-centered design, deliberation, and oversight”, which they posit has the “potential to ensure, in practice, AI systems will be designed, developed, and deployed, in ways that provide *genuinely* ethical AI (2021)”. This framework stems from the “premise that it is theoretically possible to translate human rights norms into software design and system requirements... (Yeung et al, 2021).” However, the authors ultimately arrive at the conclusion which complicates their proposal for human rights centered AI design and deployment. They write,

Because human rights are often highly abstract in nature and lacking sharply delineated boundaries given their capacity to adapt and evolve in response to their dynamic socio – technical context, there may well be only so much that software and system design and implementation techniques can achieve in attempting to transpose human rights norms and commitments into the structure and operation of AI systems in real – world settings. (Yeung et al, 2021)

The issues of the abstract nature of human rights (requiring interpretation by legal counsel and lawyers) and their applicability to complex real-world situations highlights the limitations of liberal frameworks reliant on human rights or rights-based protections. Similar approaches are taken by Molnar and Gill (2018) and by Nalbandian (2021) with calls for both legal regulation and policies of transparency to ensure trustworthy applications of AI in immigration systems (respectively). These frameworks evade

questions of the pre-existing biases that inform social interactions with legal avenues of reform, and how social biases permeate technological design and interface. Centering technological bias is useful in the analysis of new and emerging AI technologies, as it highlights how emerging technologies mimic the environments in which they are conceived and operationalized and inevitably further entrench racial, gendered, sex or class-based differences. The codification of social differences into digital and automated decision-making is cause for concern. Social and “technical codes” which now permeate the automated systems deployed in public and private sectors come to “make decisions about people’s deservingness for all kinds of opportunities then tech designers are erecting a digital caste system, structured by existing racial inequities... (Benjamin, 2019, 13)”.

Incorporating the concept of technological bias into this work centres the permeation of social bias, its extension, and multiplication of these biases through new and emerging technological innovations deployed within society. AI’s pre-emptive and predictive technologies within mobility and surveillance regimes and emerging forms of “algorithmic governmentality” rely on “the mining, aggregation, and automated analysis of mass data sets to anticipate, affect, and act upon potential behaviours pre-emptively (Vukov, 2016, 84)”. In turn, AI driven risk assessment tools exhibit a form of governing logic, which Vukov posits as algorithmic governmentality (Vukov, 2016). Basic to these functions are constructs of race, gender, and sexuality, where new and emerging forms of migration management relies on algorithmic technologies inflected with the “biopolitics of race and mobility (Vukov, 2016, 81)”. As a result, these technologies do not operate outside of socially stratified categories of difference, which enact power over the

mobility of racialized communities. While the governance motive is to focus on pre-empting risk, emerging scholarship points to the differential impacts that emerging AI technologies have had on predominantly racialized minority groups (Noble,2018; Benjamin,2019; Buolamwini and Gebru, 2018). The process of racialization is then foundational to the functions of new and emerging technologies, especially given the growing use of biometrics within the immigration and humanitarian sectors. Perspectives shared within the rights-based frameworks also forgo how current attempts to legally regulate these technologies advance a particular view of the world as linear terrain; this view is conceptualized by Atanasoski and Vora as “technoliberalism” (2019).

Technoliberalism is defined as follows:

...a version of universal humanity [that] heralds a postrace and post gender world enabled by technology, even as that technology holds the place of a racial order of things in which humanity can be affirmed only through degraded categories created for use, exploitation, dispossession, and capitalist accumulation...technoliberalism proposes that we are entering a completely new phase of human emancipation (in which the human is freed from the embodied constraints of race, gender, and even labor) enabled through technological development. (Atanasoski and Vora, 2019, 13 - 14)

Per this conceptualization, AI technologies represent the “technological objects that are shorthand for what the future should look like”, inheriting “liberalism’s version of an aspirational humanity such that technology now mediates the freedom-unfreedom dynamic that has structured liberal futurity... (Atanasoski and Vora, 2019,14).”

Technoliberalism as a concept and theoretical analytic guides my reading of the data and literature to show how “the racial and imperial governing logics of liberalism continue to be at the core of technoliberal modes of figuring human freedom (Atanasoski and Vora, 2019, 14)”. As Benjamin (2019) points out, the “different genres of humanity” are enacted through new and emerging technologies. This logic informs my investigation

into the ways in which the rights-based schemas and ethics discourse fall short in ensuring procedural justice and equitable distribution of the benefits of these technologies.

In relation to the use of AI in immigration processing and management, frameworks centering human rights evade conversations surrounding the fact that borders are spaces where rights are suspended territorially and politically for non-citizens. The universality of human rights is then also challenged, as its application is difficult to enforce without a multitude of resources being present for those experiencing human rights violations, including access to legal representation accommodating linguistic and cultural barriers. For Molnar (2021), International Human Rights Law (IHRL) is “useful for codifying and recognizing potential harms, because technology and its development are inherently global and transnational”. The lack of context-specific regulation for the use of AI in immigration and because migration management schemas are “enacted by international organizations such as the UNHCR and various other bodies”, Molnar argues for the adoption of universal rights-based regulation and enforcement (Molnar, 2021). The anchoring of protections in Western understandings of law and legal protections, however, concentrates access to justice to the West and its institutions. On a practical level, these are not suitable because immigrants, when divested of status, do not have access to these protections and rely on judicial interpretation and discretion for their inclusion within such programs. When protections are linked to citizenship status, a regulatory framework will likely privilege only those who are made legible through citizenship or those who can afford legal counsel. The interpretive nature of legal protections is limited in the recognition of the intersecting nature of oppression and

exclusion, as the burden of proving claim validity is not universal but something to be accessed through legal mediums or awarded at the discretion of government officials. These approaches also do not challenge the coercive presumption of consent in relation to refugees and immigrants engaged by AI, where inhabiting of border space becomes a means of drawing consent (with or without their knowledge). These conversations also forgo an understanding of coloniality that is ever present in the way that migration is managed.

Coloniality entails the complex processes of constructing, managing, and controlling knowledge production in a way that upholds the ‘universality’ of Euro – Western modernity (Mignolo and Walsh, 2018). These processes are ... “enacted by Western actors who, on the one hand, figure themselves as subjects guided by a totality of knowledge that they themselves have in fact generated and, on the other, their subjectivities (emoting, sensing, reasoning) are shaped by what they themselves have created (Mignolo and Walsh, 2018, 197)”. The authors’ conceptual framing of coloniality in relation to modernity, written as “modernity/coloniality”, denotes coloniality as making visible the “darker side of modernity (109, Mignolo and Walsh, 2018)”. This conceptual coupling confronts the challenge at hand of de-universalizing the assumptions of coloniality in relation to the “unfinished project of modernity in its rewesternizing stage” where modernity itself “...has been conceived in one line of time, universal time, and universal history... (Mignolo and Walsh, 2018, 117)”. The analytical coupling of coloniality/modernity makes visible what the design and epistemological traditions of AI conceal, which are the ways Western epistemologies come to frame, sieve, and engage subjectivities upon an axis of coloniality. The two concepts cannot be divorced nor exist

outside each other just as AI does not exist outside the colonality of the Western liberal terrains and global ordering. Mignolo and Walsh further this stating,

...if colonality is engendered by modernity, there cannot be modernity without colonality; and there would be no colonality without modernity. To end colonality it is necessary to end the fictions of modernity. You cannot dispense with colonality and maintain the principles, assumptions, and beliefs laid out in the macronarratives of modernity. Thinking without modernity, delinking from its fictions, is one major decolonial challenge. (109, 2018)

Of specific importance to this dissertation is Mignolo's relational conception that "technology and Artificial Intelligence are today facets of the domain (colonality of knowledge) that is taking over, including the actors and institutions generating them (2018, 197)". The geographic concentration of AI's development in the West, and its concentration within the Western dominated technical disciplines for AI's knowledge production, exemplify what Mignolo argues is the colonial and Eurocentric "pretense to be the planetary center and the desire and design to homogenize the world to its image and likelihood (Mignolo, 2018, 194)". This conception aids the present study in understanding the colonial underpinnings of AI as a technological development, as a field of research, and how both converge in a way that differentially informs its engagement of racialized people and immigrants in the Canadian immigration system. Abu – Laban et.al, scholarship on Canadian immigration and citizenship acts as a foundation for the further analysis of how the use of AI in immigration regimes builds on pre-existing racialized logics of boundary drawing and Canadian national identity (2022). Here specific examples of the differential treatment of Ukrainian and Syrian refugees illustrate how AI based technologies inherit and reproduce exclusionary surveillance and sieving practices that have informed immigration governance in Canada (Abu-Laban et.al, 2022). In reading AI in relation to global expressions of ongoing colonality,

extractive and exploitative practices such as data mining and surveillance are brought to the fore. For Couldry and Mejias (2018), the race to AI and its reliance on expansive sets of data from unregulated and underdeveloped states should be analyzed under the framework of colonialism. They state:

Data colonialism combines the predatory extractive practices of historical colonialism with the abstract quantification methods of computing. Understanding Big Data from the global South means understanding capitalism's current dependence on this new type of appropriation that works at every point in space where people or things are attached to today's infrastructures of connection. (Couldry and Mejias, 2018)

This framing of data colonialism is also useful in relation to the social dimensions of administrative automation that occur in tandem and helps interrogate the emergence of newer forms of extractive innovation regimes, central to the makings of AI and its applications. Postone (1998) emphasises the abstract dimensions that labour acquires under global capitalism; Couldry and Mejias further this by stating that Postone's reading enables us to recognize the new forms of commodification taking place in the organization of data collection, production, and consumption (Couldry and Mejias, 2018). This is useful in disrupting the consensual and autonomous view of data, where data of all kinds is to be understood as an abstraction of human life processes (Couldry and Mejias, 2018).

Data is in no way "abstracted automatically, but through social relations to which at some point, even if retrospectively, we are assumed to have consented (Couldry and Mejias, 2018)." In this way, data is extracted, harvested, sieved for value, and categorized to guide production in the social sphere, all of which is posited as offering convenience, efficiency, and customization for the consumer. Data is then produced through operations that are framed as divorced from human life, or as having bypassed humans and their

socialization processes. It is subsequently distributed as new “social knowledge” that subsequently binds us (human beings) to the discriminations that such knowledge generates (Couldry and Mejias, 2018). Results of data processing are then in no way naturally occurring sources of social knowledge, but are intricately guided by societal input, power structures, and differences inherent in its production apparatus and extractive methods (Noble, 2018). Both Mignolo (2018) and Couldry and Mejias (2018) converge in capturing the multidirectional and varying extents and expressions of coloniality as it forms and informs the new wave of AI techno-scientific venture. Madianou (2019;2020) furthers this view in her conception of technocolonialism, which refers to the “convergence of digital developments with humanitarian structures and market forces” which “reinvigorate and rework colonial legacies”. It goes further and “acknowledges that phenomena like displacement, migration, refugee camps, humanitarianism, as well as the development of digital technologies itself are steeped in colonial relations of inequality (Madianou, 2020).” This conceptualization aids this dissertation’s inquiry into the use of AI in immigration and refugee programs, the uneven terrains upon which the perceived protections of human rights are applied, and the processes through which AI disproportionately engages in the capture and sorting of immigrants and refugees.

Within these uneven terrains, it is the spatial reality of territoriality, boundary drawing, sovereignty, and statecraft that serve as the backdrop against which the development and deployment of AI based immigration management tools, programs, and regimes occurs. Informed by Mbembe’s “the society of enmity”, this dissertation draws on the notion of enmity to bring to the fore the permanent state of competition between

states (as defined by geo-political enmity) and between those it deems worthy of enfranchising through citizenship versus those who constitute an ongoing threat to its sovereignty (2019). Moreover, Mbembe's conception of sovereignty as a spatial reasoning vested in enmity and how it informs spatial relations of exclusion, bordering, and sovereign grounds keeping, furthers this study's investigation of Canada's modes of interdiction, the use of AI in statecraft, and the digital expansion of border regimes (beyond the physical lines) to ensure the interception of a consistently moving and changing enemy (2019,49). The process of manufacturing fear of enemies—real or perceived— provides the basis for the use of AI enabled mass surveillance, harvesting the personal details, thoughts, and movements of people as a method of purported threat management (Mbembe, 2019, 42 – 51). Furthering the analytic of coloniality and colonial global ordering as the axis along which spatial relations and the production of hierarchized borders and the classification of peoples occurs, Mbembe argues that spatial territorialization acts as the raw material of sovereignty upon which the colonial order allots differential rights to peoples within the same space(s), “relegating the colonized between subjecthood and objecthood (Mbembe, 2003, 26)”. Using Mbembe's intervention, this dissertation draws out the ways in which the differential subjectivity of (im)migrating peoples is formed and pronounced by AI, which in turn is foundationally reliant on pre-existing notions of colonial spatial relations and the classification of people it enacts upon the global order. Here, the exercise of sovereignty, bordering, and the differential allotment of rights that are part and parcel of this exercise enroll new technological advancements to further safeguard and entrench these projects.

In line with the need to center coloniality in the frameworks used to study AI and its unequal effects, Mohamed et al. (2020) provides a promising theoretical model to guide not just the study of AI but also its praxis and design outcomes. As identified by Mohamed et al., decolonial theory brings to the fore the historical instances of coloniality (in its differential and ongoing forms), highlighting asymmetries of power and how these disparities inform intellectual, social, political, and economic processes (2020).

Employing a critical decolonial approach to AI and its applications presents an opportunity to decenter the liberal-Western ethical frameworks largely guiding the AI discourse by calling into question the values (whose values shape the innovation landscape?), labour (whose labour is obscured by these technologies), and power (the differential landscape of power) (Mohamed et al, 2020). In investigating whose values and cultural norms are upheld when adopting AI based systems and how historical asymmetries of power necessitate the differential application of AI based technologies, critical decolonial approaches to AI can move current discourse beyond the liberal legal framing of ethics and regulation discourse, opening these discussions up to a multiplicity of perspectives, and encouraging harm reduction to be at the forefront of the design of public AI applications (Mohamed et al, 2020).

In response to this framework, Adams (2021) argues that centering decolonial theory in relation to AI applications must also de-universalize the concerns surrounding AI, given its differential and disproportionate harms (Adams, 2021). Adams (2021) makes an important distinction, highlighting that benefits and harms of AI are not equally shared between the global North and South, it is then pertinent for researchers to attend to the ways in which any exchange and or inclusion initiatives in relation to a more

egalitarian AI must not adopt the “language of shared concerns” (Adams, 2021). In sharing the concerns put forth by Adams (2021), using decolonial theory without accounting for the differential relationships that Indigenous communities, settler immigrants, refugees and asylum seekers have with the Canadian state would irresponsibly collapse the experiences of multiple communities into one. Decolonial theory illuminates the ongoing nature of global colonial relations and its unevenness. However, an intersectional approach is needed to highlight the contrasts between its differential impact on marginalized communities residing in the global North and the South, the multi-directional nature of oppression, and the historical and existing differential state programs and relationships between Indigenous peoples and Canada, as well as settler immigrants and Canada, an intersectional approach highlights the contrasts between different communities and the state use of AI. To avoid the theoretically inconsistent use of decolonial theory (without engaging with or including indigenous perspectives), and direct attention to the differential governance of different groups in Canada, this dissertation relies on Hill Collin’s (2019) conception of an intersectional theoretical framework operationalizing epistemic resistance.

This study’s intervention as it relates to Collin’s (2019) conception is two pronged. The first focuses on resisting and challenging the concentration of the study of AI to technical disciplines (i.e., Computer Science) and the second is to highlight how an intersectional study and approach to AI can account for the multi-directional and differential engagements marginalized communities face when engaged by AI. Employing a qualitative framework challenges the quantitative methodological and normative turns within the study of the impacts of AI on society and more specifically on

immigration. This approach illuminates differential relationships with power structures and the multiple registers upon which AI is conceived and deployed towards the concentration of benefits in the global North. Using this analytic of coloniality, this dissertation questions the methods used to design and apply new automation methods, and how these types of exclusion as well as the guise of computational objectivity cast the West as generators of knowledge and others as consumers or ‘usees’ (Baumer, 2015). This analytic is also used to read through the technosolutionism that foundationally informs the technical approaches and urgent adoption of AI within previously human tasks. Coined by Madianou (2019; 2020), technosolutionism is conceptualized in relation to the “logic of solutionism” which “is the idea that technology can solve complex social problems”. This logic aids the understanding of the social and political turn towards technological solutions, also explaining the “prevalence of technological experimentation and hype which are also evident in biometric experiments like the “Building Blocks” scheme in Al Za’atari refugee camp in Jordan (Madianou. 2020)”. Building Blocks is a blockchain program used by the World Food Programme (WFP) which uses biometric information (e.g. iris scans) to facilitate food aid distribution (Juskalian, 2018).

The concept of technosolutionism also furthers the critique offered by computer scientist Joseph Weinzenbaum (1985) where social innovation is overlooked, privileging and or favouring technological invention in its place, as is the case with its use in immigration management. In attending to ways in which colonial geopolitics implicate socio-technological innovation programs, there is opportunity to engage in a critical inquiry of the ways in which the proliferation of technology in our daily lives is contributing to progress for some and retrogression for others. Looking at the origins of

science and technological venture, Prakash argues that colonial rulers perpetuated the universality of science from a “particular colonial double”. Prakash describes the “double” or “doubleness” that emerged out of colonial encounters of scientific advancement as denoting a series of polarities that developed binaries: “scientific/ unscientific, universal / particular, European/Non – European, and colonizer / colonized, through which colonialism functioned (Prakash,1999).” Through Prakash, we can observe how science and technology operate in tandem to inform discourse (political, pedagogical, and otherwise) into global divides of the global North and South. From this understanding of the historical conception of science and technological advances, Canadian national strategies for AI requires reconceptualization to interrogate the role national programs of science and technology and (im)migration, specifically the processes through which Canada seeks to differentiate itself, are fundamental to the construction of a positive international image for Canada. Bringing into question historical instances in which Canada privileges certain communities of immigrants to further statecraft and development. This study examines and challenges the ways in which AI is relied upon for knowledge production. In reference to this, Mbembe (2019) argues,

Since markets themselves are increasingly turning into algorithmic structures and technologies, the only useful knowledge today is supposed to be algorithmic. Instead of actual human beings with a body, history, and flesh, big data and statistical inferences are all that count, and both are mostly derived from computation. (109)

In employing an intersectional framework that requires attention to the epistemic allegiances of AI and computational logic as superior, this dissertation centers the experiential knowledge of immigrants and those engaged within the immigration and

settlement fields to undo the association of AI with truth making and rational supremacy. This investigation is situated in epistemic resistance towards overarching narratives of AI that are vested in technosolutionism, evading opportunities for social innovation and instead privileging technological innovation in its place. Examined are not only the design and application of AI systems in Canadian immigration policy designs, but also their epistemic center, calling into question the colonial narratives which position AI as superior to human rationale. This analysis complicates the numerous registers of power inscribed onto the immigrating and refugee communities. Examined are the intersecting nature of social categories of difference taken for granted and fed into data loops and machines, then cast upon a people to determine their admissibility into the ongoing and fluctuating state project. Informed by Hill Collins (2019), this dissertation uses intersectionality as the guiding analytical framework, where epistemic resistance and methodology are key dimensions of intersectional theorizing. Intersectionality, then, is not bound to or limited by its founding within colonial legal narratives which “signal power relations of domination that begin with discovery, move on to conquest, and end with ongoing pacification (Hill Collins, 2019, 122).” Instead, it allowed for the critical examination of the relationship between AI’s knowledge production and the power that the concentration of knowledge wields through both epistemic and methodological tradition across disciplines under narratives of capitalism and ongoing global colonial ordering projects.

This study employs coloniality as a guiding analytic and an intersectional theoretical framework to interrogate the relationships between the use of AI in immigration, sovereignty, coloniality, bordering, and statecraft. Informed by Hill Collins

(2019) and expanded by scholars of decolonial and critical AI studies (Mohammed et.al, 2020; Bucher, 2019; Benjamin, 2019 ; Noble, 2018; Couldry and Mejias, 2018; Mignolo, 2018; Adams, 2021; Madianou, 2019, Madianou, 2020), the intersectional analytic framework allows for the examination of the multidirectional expressions of power as pronounced through race, gender, class, the enduring legacies of colonization, how these inform contemporary immigration management through AI, and its role in statecraft. This framework aids the critical analysis of how AI technologies, presented as rational tools for administrative efficiency, reproduce and further entrench enduring forms of highly racialized and colonial spatial forms of control. Deployments of AI in Canadian immigration systems are read not as upgrades in technological capacity but as deeply complex processes entrenched within colonial histories, and within the logics of sovereignty and bordering and oppression. Intersectionality allows for the centering of immigrant populations and their differential governance through various modes of AI. An intersectional approach also aids the structural critique of the convergence between AI and state imperatives, and how these intersect with global regimes of digitally mediated mobility, exclusion, and migration control.

RESEARCH METHODOLOGY

To elevate qualitative methods in the study of AI in immigration and challenge the modes of knowledge production which remains concentrated within the Canadian legal field and government publications, this study employs primarily qualitative methods to promote contributions from immigrants themselves, and from those within professions surrounding immigration, migration law, and settlement agencies.

To capture the multiple points of AI's impact, its forms, and sieving expressions, this study advances a variety of qualitative assessment tools. This included 18 qualitative interviews (in person and electronically mediated) with Immigration lawyers, Immigration field specialists (employed in immigration services and nonprofit advocacy), Subject matter experts (such as journalists, settlement workers, and community workers) and Tech experts (those employed in the technical fields of AI), secondary analysis of journalistic coverage of the use of AI in Canadian immigration systems, case studies of IRCC's use of automation methods (e.g., the Chinook program), an analysis of Chinook's functions via the Policy Playbook on Automated Support for Decision – Making via Tao, 2022 and Meurrens 2022, the Vector institutes report on Artificial Intelligence Talent in Canada (2024) , digital publications by the IRCC on its use of AI and collection of biometric information from refugees, and public reports on the Canadian use of automation in refugee sponsorship applications detailed in government documents, public policy reports, and historical Council Orders in Canadian Immigration programs.

This study also draws on the results of a quantitative survey consisting of 30 participants to capture and understand the Canadian immigrants (dis)comfort associated with the growing use of AI based technologies in immigration. Instruments and methods are deconstructed below to depict their suitability and use -value to this project below.

INSTRUMENTS, DATA GENERATION, & METRICS

INTERVIEWS

Law (Immigration) 1	Tech Field 2	Immigration 3	Subject Matter Expert 4
Maximus	Chris	Nicola	Abby
Paulina	Angelina	Sabrina	Gus
Hiba	Alex	Swati	Trina
Wasim	Thomas	Sophie	Ash
	Damien	Pierre	

Table 1. *Interview Participant Pool.*

*Names of all participants have been changed to protect their input and privacy

I sought to conduct 2-hour interviews with 25 professionals, and I secured 18 interviews, from the immigration, legal, and artificial intelligence field(s) to gain an understanding of the day-to-day processes and procedures that have been impacted considering automation within the sector. Participants were invited through personal invitations and through an open call for participation shared electronically via email and on social media platforms like Twitter (now X). Participants were also selected through the snowball sampling method, where known participants referred or recommended participants for the study. This included professionals from the Immigration, Legal, Asylum and Refugee fields and immigration settlement agencies. I sought interviews from professionals in the field of immigration, law, and AI to map the impact of AI technologies on discretionary powers in decision making. I chose immigration professionals as they are often the first point of contact for compassionate applicants filing for refuge and asylum. I included perspectives from AI's technical field to understand the perspective of designers and developers and how they would approach the integration of AI in immigration. The interviews aided my understanding of the extent to which persons employed within the

immigration sector trust these new technologies to carry out application processing and make decisions on compassionate applications for those seeking refuge and asylum. The interviews gave way to additional information through open-ended questions. In this way going beyond the close ended static responses generated by the survey and its limitations and providing context and nuance to questions asked.

SURVEYS

Between 2020 and 2022, I sought 50 anonymized surveys and secured 30, using the snowball method. These surveys sampled first and second-generation Canadian immigrants, to analyze how familiar applicants were with their data being extracted, the new processes of decision making, and how to access its regulatory bodies (if any). The survey was conducted to show how emerging technologies rely on certain assumptions of technological superiority and takes for granted a level of digital literacy from everyone that is engaged by such technologies. Surveys were designed using Survey Monkey but were completed in printed hardcopy once COVID restrictions eased.

SECONDARY CONTENT ANALYSIS

This project relied on secondary sources including but not limited to journalistic coverage of AI's integration into Canadian governance and immigration between 2016 to 2024, historical federal reports such as Canadian Science Policy (reports by the Canadian special committee on Science Policy) 1970, reports from the Science Council of Canada (1977), The Pan Canadian AI Strategy, the Canadian Armed Forces and Department of Defence AI Strategy, legal case studies of the IRCC's Chinook software program, and the Canadian Global Affairs report on the automation of Privately Sponsored Refugee (PSR). I analyzed digital publications by Immigration Refugee and Citizenship Canada

(IRCC), these included publications which centred on public disclosures of the use of automation of the IRCC's operations, its campaign on #immigrationmatters, as well as the IRCC's public communications on its differential refugee acceptance rates. These sources are essential to the mapping of patterns prior to the introduction of AI based decision making in Canada's immigration systems and in uncovering any changes that have occurred for entrants since its deployment. Qualitatively, this study heavily relied on secondary sources and content analysis of the literature in the field.

LIMITATIONS

Limitations to the study include but are not limited to; 1) COVID – 19 Restrictions and Safety Protocols, which resulted in the suspension of in person interviews and switching to electronic means of conducting qualitative interviews; 2) I was not able to engage personnel from the IRCC or the CBSA for this study both due to COVID restrictions and lack of response to calls to participate in the study. This gap was supplemented by interviews from immigration professionals, lawyers, settlement workers, and other adjacent professionals in the field of Canadian immigration, secondary materials such as CBSA internal reports, House of Common's witness statements on the use of AI by the CBSA and the IRCC, and other public materials released by the IRCC. Lastly, there remains no opportunity to audit or analyze AI applications used in migration technologies within Canada or abroad given the proprietary nature and the securitization of such programs and thus this dissertation relied on the IRCC's publications i.e., the audit conducted by Global Affairs Canada.

ETHICAL IMPLICATIONS

This study received ethics approval through the Faculty of Graduate Studies and the Office of Research Ethics (ORE) at York University prior to conducting any human based research. All human based data was anonymized, with names changed, to protect participants and their privacy. No compensation was offered to participants in the study to ensure participation remain entirely voluntary. In accordance with the confidentiality agreement outlined in my informed consent documents, participation data (electronic and hard copy) were destroyed once transcribed into the dissertation.

CHAPTER OUTLINES

Chapter One consists of the introduction and outlines the dissertation and the dissertations research program, methods, and guiding components. Chapter Two presents a literature review drawing on the current approaches to the study of the use of AI in the immigration and public sector (broadly defined). The literature review introduces the legal and normative approaches to the questions and contestations regarding the use of AI and digitally mediated decision making in the immigration and governance processes, then covers the critical approaches to the use of AI in border governance; and finally it presents the limitations within the legal and critical literatures in responding to the racialized and colonial underpinnings of contemporary AI design and deployment within immigration sectors. It also highlights contemporary literature on AI and immigration must account for the ways in which AI furthers the goals of racial statecraft, and border regimes to enact sovereign orders vested in differential citizenship allocation.

Chapter Three undertakes an analysis of scholarly and journalistic investigations into the Canadian use of AI in its immigration sector, and an overview of Canadian immigration policy history. It covers the introduction of automation and AI within the

Canadian immigration program through an analysis of the Chinook software program and the Canadian Global Affairs report on the automation of Privately Sponsored Refugee (PSR) application by the IRCC to illustrate the course of AI as its deployed within the immigration system.

Chapter Three also shares and analyzes qualitative interviews obtained by experts engaged in the fields of immigration, AI, and immigration law. Chapter Four undertakes a review of the Canadian Senate's Science Policy for Canada reports (1970) and the literature on Canadian technological sovereignty to demonstrate the role that leadership in science and technological advance plays in statecraft and how these are reproduced through the Pan Canadian AI strategy and the Canadian Department of Defence and Armed Forces AI Strategy. The analysis of the two strategies is undertaken using Mbembe's notion of enmity to illustrate the emergence of techno-enmities, and the role of AI in statecraft.

Chapter Five illustrates how Western notions of sovereignty, the politics of difference, and relations of enmity are reproduced through AI and emerging technologies and how this stretch and enact borders in a way that constructs subjects differentially. Chapter Six discusses the overarching concerns shared by participants in the qualitative interviews on the use of AI in the Canadian immigration sector. Chapter Six also shares the results of the quantitative survey conducted to capture perceptions of first and second-generation immigrants to Canada towards the integration of AI in immigration processes. Chapter Seven concludes the study and presents the contributions of this dissertation, recommendations for future study, policy recommendations and study limitations.

CHAPTER 2: AI, IMMIGRATION, AND CANADA

The deep entanglements of the AI innovation discourse with global ordering, geo-political knowledge concentration, and its role in consolidating sovereignty through its use in migration management makes visible three major themes in the study of AI and migration control. Building on the intersectional analytic program of this dissertation, this chapter seeks to present a literature review covering the following: 1) A critical analysis of AI's role in (im)migration processing in Canada and the limits of legal approaches to the regulation of AI in the public sphere. This chapter highlights the gaps in Western legal approaches which rely on international human rights frameworks such as the United Nations Human Rights Declaration as a substantive means to mitigate and reduce harm; 2) through an intersectional reading of scholarship on bordering practices and coloniality, it shows the role that new and emerging digitally mediated technologies (such as AI) play in shaping immigrant and refugee subjectivities, and how these are engaged across social categories of racial, sex based, gendered, and classed difference; and 3) analyzes how the convergence of AI within governance apparatus results in racial statecraft and sovereign grounds keeping by stretching the physical entry and exit points of borders in the global West through the use of automated migration management tools.

AI AND (IM)MIGRATION MANAGEMENT IN CANADA

AI has become increasingly embedded within Canada's public sector. In 2024, Western University's Joanna Redden of the Starling Centre for Just Technologies and Just Societies shared a database that identified 303 automated tools being used by the Canadian government, of which 95 percent are being used by the federal government (CBC, 2024; Karadeglija, 2024). In 2018, The Citizen Lab at the University of Toronto

published the “Bots at the Gate” report on IRCC’s use of predictive analytics to automate the evaluation of visitor applications (Molnar and Gill, 14, 2018). The report highlighted the government’s accelerating interest in the adoption of predictive technologies across its immigration sector (Molnar and Gill, 14, 2018). Of particular interest to this dissertation is the Request for Information (RFI), a request for feedback, development, and procurement of services, submitted by the IRCC, seeking AI powered solutions which can “be used by front-end IRCC administrative decision makers across the domestic and international networks to support their assessment of an application’s merits before decisions are finalized (Molnar and Gill, 15, 2018)”. The report further showed that the RFI’s specified two cases for the use of AI powered decision making, in Humanitarian and Compassionate (H&C) applications (refuge and asylum applications) and Pre – Removal Risk Assessments (PRRAs), both of which involve vulnerable communities requiring high levels of discretion and sensitivity (Molnar and Gill, 2018). Molnar and Gill (2018) took issue with governmental regulation responses such as The White Paper on “Responsible Artificial Intelligence in the Government of Canada”, which centered around the notion that “systems deployed on behalf of the government should be trained to reflect Canadian and international human rights obligations”, stating that while “reassuring” these approaches remain “non – binding and aspirational at present (16).” The authors highlighted that while the white paper “envision[s] a model where greater safeguards, oversight, and procedural rights are engaged” given the potential of impact on the rights and interests of individuals and the public at large, these regulatory models are unentrenched, unenforceable, and thus “subject to change (Molnar and Gill, 2018, 17 - 19)”.

This dissertation's theoretical reading and intervention challenges the human rights-based approach, which centers legal enforcement and entrenchment of protections in relation to the use of AI in immigration processes. Applying an intersectional lens, to account for the multi-directional and intersecting nature of oppression, highlights the ways in which legal access and protections are not only differently applied when considering citizenship status of immigrants but are also pronounced differentially across social categories of race, gender, sexuality, and class.

In a related study, Molnar (2019) argues that as more states take a technological approaches to migration management, the ramifications of its harms and biases fall squarely on marginalized populations with little to no access to legal redress or procedural protections (Molnar, 2019, 328). However, Molnar still urges that "it is the normative universality of human rights that presents a viable starting point for the global governance of migration management technologies (Molnar, 2019, 328 - 329)." While emphasizing the need for frameworks advancing global accountability, for Molnar, a commitment to regulating migration management technologies will ensure access to procedural fairness and opportunities for redress, centering normative human rights models (2019). Within the context of COVID-19 and the use of digital technologies used to track and inform mobility restrictions, especially for migrants, McAuliffe et al., also called for the prioritization of human rights in the development of new and emerging technologies used in migration management (19, 2021). Nalbandian (2021) examined Canada's use of AI to screen immigrants in comparison to New Zealand's use of AI to track and deport migrants, calling for transparency and public trust building in the government's use of AI. However, like the reliance on legal regulation, transparency

does little to disrupt the differential relationship immigrants have to the state and government. When using an intersectional lens, legal and rights-based discourse becomes complicated by the divergent nature of international and local governing institutions and questions of who gets to govern and enforce rights related to the development and use of AI. More urgently, it brings into question the “universality” of human rights protections which are anchored in liberal – Western frameworks even though many of those impacted are from the global South and are not recognized as subjects of the West. Further complicating the enfranchisement or protection of non – Western subjects through legal or rights-based enforcement models.

Such frameworks — while noble in their endeavors to protect human rights—are also complicated by concerns of un-enforceable rights, the incompatibility of enforcement without legal representation, and the material inequalities and inequities that make legal protections inaccessible to migrating populations. Given that legal institutions are imbued with highly racialized and gendered terms of engagement, the levels of protections offered through legal regulatory schemas are rife with contestations. While there is no doubt that the use of AI in immigration—specifically its use in processing refugee applications—raises human rights concerns, the rights-based framework is foundationally challenged by the notions of universality it operates on. Specifically, the notions of universality assume that 1) human rights are enshrined and enforced throughout the world; 2) their application is regulated and enforced globally (and are not subject to geo-political variances); and 3) that they do not require legal mediums and advocacy (lawyers and counsel) to obtain just outcomes. To disrupt the logics of the legal and rights-based approaches to AI regulation, this dissertation situates and examines AI’s

integration into the Canadian immigration system through Atanasoski and Vora's (2019) conceptualization of technoliberalism. Technological advance and visions of technoliberalism employ a particular version of universalism and a universal humanity which "heralds a post-race and post-gender world enabled by technology, even as that technology holds place of a racial order of things in which humanity can be affirmed only through degraded categories created for use, exploitation, dispossession, and capitalist accumulation (Antanasoski and Vora, 2019, 13)". The universalization of rights and protections then falls short of acknowledging the power differentials between the producers, deployers, and those impact by AI technologies. It also evades questions of racial, gendered, and geopolitical variances, which contribute to inequalitarian engagement with such technologies. While digital rights-based schemas can create some accountability of AI applications, they must attend to the ways in which the legal discourse does not afford protections to marginalized groups to the same extent as non-vulnerable communities, especially in relation to non-citizens. Karppinen and Puukko point out the shortcomings of the digital rights-based discourse as an inherently individualistic concept, stating that it is difficult gauge the extent to which the rights model will be able to offer "meaningful solutions in an environment characterized by deep societal inequalities produced by surveillance capitalism or data colonialism (Karppinen and Puukko, 2020, 323)".

The strong embrace of AI and other digitally mediated decision making by the CBSA and IRRC continues under the banner of efficiency, security, and overcoming administrative backlog (Keung, 2017). The new "Traveller Modernization" campaign is set to incorporate even more digital tools in addition to the existing use of "facial

recognition to help confirm” identity, the Advance Declaration program, digital kiosks, and eGate ([CBSA, 2024](#)). While governance officials and AI enthusiasts frame the speedy adoption of AI within the immigration sector as the objective next step to upgrading immigration processing systems, critical AI scholars argue that AI does not operate outside of existing social biases (Benjamin, 2019; Noble, 2018). For Benjamin, technological advancements are “sold as morally superior because they purport to rise above human bias, even though they could not exist without data produced through histories of exclusion and discrimination (Benjamin, 2019, 10)”. In relation to the driving force of reaching maximal efficiency through AI, Benjamin argues that power is central to the critical analysis of AI’s promise of efficiency, stating, “important to this story is the fact that power operates at the level of institutions and individuals – our political and mental structures – shaping citizen – subjects who prioritize efficiency over equity (Benjamin, 2019, 30 – 31)”.

AI applications and the contested role of digital technologies used in migration management continue to generate debates which embody the “empowerment and control nexus”, the biases built into these systems require further critical reflection (Nedelcu and Soysuren, 2020). The outsourcing of human decision-making, and the subsequent distancing exercised by deploying new technologies, cannot ‘neutralize’ these challenges (Madinou, 2021, 859; Benjamin, 2019, 30). Within the existing literature on AI and digital surveillance, the term AI has come to constitute an umbrella term for the varying and disparate digital and technological interventions made within formerly human facing processes. Suchman (2020) speaks specifically to this practice as follows:

Artificial Intelligence is now widely assumed to be something, some *thing*, of great power and inevitability. Much of my work is devoted to trying to demystify

the signifier of AI, which is actually a cover term for a range of technologies and techniques of data processing and analysis, based on the adjustment of relevant parameters according to either internally or externally generated feedback. Some take AI developers' admission that so-called "deep-learning" algorithms are beyond human understanding to mean that there are now forms of intelligence superior to the human, But an alternative explanation is that these algorithms are in fact elaborations of pattern analysis that are not based on significance (or learning) in the human sense, but rather on *computationally detectable correlations* that, however meaningless, eventually produce results that are again legible to humans, From training data to the assessment of results, it is humans who inform the input and evaluate the output of the algorithmic system's operations. (Suchman, 2020)

Elsewhere Suchman's (2023) critiques that the use of AI even within critical literatures present AI "as self-evident rather than in need of substantiation". Acknowledging that AI encompasses varying operational modalities and technical features, the goal of this dissertation is not to substantiate *what AI is* rather it investigates how new and emerging technologies, whether algorithmic, a variation of AI, deep or machine learning programs, and automation used within migration management and decision making are not ahistoric, apolitical, and are instead continuities of colonial sovereign groundskeeping and world making. In fact, digitally mediated decision, algorithmic and or data driven making constitutes a form of world making and thence decide "what gets to be in the world (Bucher, 2018, 3)." Following Bucher's analysis of algorithmic power, this dissertation argues that the use of AI in immigration management is less about what algorithms can achieve, and more about who these are deployed and availed by and who sets the rules for their deployment (Bucher,2018,4). Operating along a colonial axis of migration, "in ranking, sorting, predicting, and processing data, algorithms are political in the sense that they help to make the world appear in certain ways rather than others (Bucher, 2018,3)."

As a result, this dissertation engages with literature that often uses AI to signify the data driven, algorithmic, and or biometric technologies deployed in migration management programs (Vukov, 2016; Bircan and Korkmaz, 2021; Madianou, 2019; Madianou 2020; Akhmetova, 2020; Goltz et al, 2023). Within the context of border and immigration management, AI is deployed in a variety of applications, including biometrics. Biometrics, which is concerned with the collection of biological data, e.g., iris/pupil scans, fingerprints, photos, has now evolved to collect and monitor a variety of “human gestures via mathematical algorithms (Vukov, 2016, 87)”.

Arun goes one step further, critiquing the overwhelming focus placed on technical design, arguing that the pre-occupation with the design of AI, its interface and systems stem from a view which divorces AI from society (Arun, 2020, 589). Arun warns that the increasing influence of privately owned AI based technologies in the public sphere, and the delivery of public services through public-private partnerships, is of grave concern given the differential impact that this has for the global South. The public-private partnership in the migration management sector is such that it pushes for “data driven development mediated by private actors (Arun, 2020, 590).” These partnerships reinforce once another, where international NGO’s and governments reliance on data collected by the private sector and vice versa, creates bias and “opaque decision-making systems (Arun, 2020, 590).” Especially alarming is the lack of protections for vulnerable peoples in the refugee and asylum-seeking projects, where technologies designed without attending to social or cultural norms can fail in local applications and functions, thus generating harm (Arun, 2020, 591). An intersectional reading brings into question the challenge of achieving technical forms of justice in

relation to the widespread use of AI in immigration processing, management, and deterrence by illustrating the socio-political inequalities furnished by global colonial dichotomies between the global North and South. While much of the literature is concerned with bias, the technical design, the substantiation of differing AI methods, and training mechanisms that can reproduce social biases, an intersectional analysis reveals how AI and its deployment programs are steeped in longstanding regimes of coloniality and exclusionary practice, making AI a political expression of power and form of statecraft. Digital bordering practices as executed through AI applications then, should be analyzed in relationship to racialized border regimes and ongoing global structures of mobility management that are embedded in colonial boundary drawing. An analysis of the use of AI by the Canadian federal government in the processing of immigrants and immigration management requires intervention that moves beyond the technical features which recycle pre-existing biases, to integrate the ongoing features of coloniality and how these shape immigration policy and programs and reorient the use of AI as a method and mode of statecraft.

The liberalization of Canada's immigration policies between the 1960's and 1970's has segmented the country's national identity as one committed to and "valuing cultural diversity", with the adoption of multiculturalism as "having helped bring us international recognition and opportunity (Thobani,2007, 144)". Thobani expands on multiculturalism's role in generating a distinguishable Canadian national identity, stating,

Said to distinguish Canada from the assimilationist 'melting pot' tendencies present in the United States, multiculturalism as an official policy furthered popular perceptions of the nation having made a successful transition from a white settler colony to a multiracial, multi-ethnic, liberal-democratic society. Imagined now as welcoming 'diverse' immigrants and valuing their cultures, the nation – state came to be seen as particularly amenable to resolving ethnic and

cultural divisions. This perception, it should be noted, was also shared by many immigrants. (Thobani, 2007, 144)

However, multiculturalism has enabled the reconfiguration of cultural difference as the “most significant aspect of the nation’s relations with its (internal) Others (Thobani, 2007, 145)”. An intersectional analysis thence captured the differential relationships racialized immigrating communities of varying backgrounds have with the state. To interrogate these processes, this dissertation undertook a qualitative analysis of Canadian immigration policies such as the Canadian Immigration Act and the Orders of Council made under it, to show how the IRCC’s use of the Chinook automated decision-making program and the Automation of Privately Sponsored Refugees (PSR) applications mirrors the longstanding practices of differential engagement of racialized (im)migrating peoples by the Canadian state. An intersectional analysis reveals that Canada’s use of AI in immigration is not simply a move towards innovating analogue administrative tasks, but a continuation of historical logics of racialized statecraft through immigration programs as delineated by Matas (1985), Linden (1961), and Abu – Laban et.al (2022). The racialized modes of exclusion do not cease to exist with the liberalization of immigration programs, but are reinvented through digital interface, rooted in logics of coloniality and exclusionary border governance programs.

To show the limits of the liberalization of Canadian immigration programs in relation to legal protections for racialized immigrants in Canada, I analyzed the policies and barriers introduced by the Canadian Cabinet to prohibit entry of racialized immigrants, such as monetary stipulations, the continuous journey policy, the limits on the number of immigrants allowed to enter Canada from the global South, and historical instances of exclusion such as the turning away of the MS St. Louis carrying Jewish

refugees and the Komagata Maru. This overview is also supplemented by an analysis of publications by the Canadian government on its differential reception of Ukrainian and Afghani refugees. My intersectional analysis also made use of investigative journalism and newspaper coverage of Canadian use of AI in immigration systems and current developments to capture and analyze public sentiment and debates. Additionally, I used submissions made to the House of Commons (HOC) by Canadian immigration experts and legal professionals (i.e., Tao, 2022) on the use of AI and Chinook in the processing of immigrants to Canada, highlighting their concerns surrounding the further propagation of racism using programs like Chinook. To delineate the intimate relationship between the use of AI in public sector of immigration and AI's role in state craft, Tao's submission to the HOC is read in conjunction with Edwards et.al., which positions Canada's use of Chinook in its immigration processing as the "cybernetization of the state" (2024). Drawing on Edwards et al, 2024 this dissertation illustrates how technological logics impede on and reshape the qualitative rationales of governance, highlighting the converging nature of AI with the Canadian state apparatus (Edwards et.al, 2024).

BORDERING PRACTICES AND COLONIALITY

The dominant literature within the field of critical AI as anchored in the seminal works of Noble (2018), Benjamin (2019), Buolamwini and Gebru (2018), Raji et al., (2021), Broussard (2018), and O'Neil (2016), attends to the reproduction of racial inequality through computational and mathematical modeling, which generate the architecture of contemporary AI applications. Despite warnings of systemic discrimination, bias, or technological failure, a variety of automated technological advancements have been

introduced across migration management sectors and aid dispersal industries (Madinou, 2019; Vukov, 2016). Partnerships between the public and private sector emerged in a post 9/11 era marked by the proliferation of smart border and surveillance technologies (Vukov, 2016). The Smart Border Declaration (2001), a bilateral agreement between Canada and the United States, captures this convergence of private security industries (i.e., Palantir and Deloitte) and public governance partnerships in co-constructing the data-driven, algorithmic, and digital technologies that served as the securitization efforts (82, Vukov, 2016). While valuable, these approaches do not attend directly to the spatial orders and colonial organization of geospatial relations, especially pertaining to the use of AI in the public sector and more specifically in immigration processing and management.

This gap in the literature, is addressed through Walia (2021), who portrays the convergence between nationalistic boundary drawing and technological advancements, where the border is conceptualized as a dynamic and fluid spatial arrangement, an expression of sovereignty, that is further extended through technological and digital augmentation. This intervention is further supported through Everuss's (2021) conception of how new and emerging technologies extend the border and its activities far beyond its physical entry and exit points, further stretching sovereignty through digital bordering programs. Building on this scholarship, this dissertation shows how the racial assemblage is continuously reconstructed to limit and govern the mobility of (im)migrants and refugees (predominantly from the global South) and highlights how new and emerging technologies may innovate methods but follow colonial imperatives of uneven development facilitating differential receipt of advancements, benefits, and

consequence. Here, the digital and AI based technologies do not see beyond bias; instead, they reinforce and “amplify social hierarchies”, advancing an uneven dialogue through technologies conceived and designed in the West and at the expense of refugees, immigrants and marginalized persons (Madinou, 2021, 864; Mohamed et al., 2020, 675). This position is further supported through Vukov (2016) and Abu – Laban and Gabriel (2008), delineating how Canadian immigration policies have been constructed on a racialized colonial axis to meet the needs of the Canadian labour markets, rather than to diversify the population. Thobani (2007) and Everuss (2021) also highlight the colonial and racialized underpinnings of bordering practices both within and beyond the state. Building on these literatures, this dissertation shows how the use of emerging technologies and AI are not apolitical, but instead continuities of colonial immigration management programs. To capture the differential engagement of subjects within the state, this dissertation undertook a qualitative analysis of the use of Clearview AI by the Royal Canadian Mounted Police (RCMP), the use of third party DNA services by the CBSA to establish the country of origin of detainees, and the use of Facial Recognition Technologies (FRT) by the local York Regional Police in Ontario (YRP). These cases act as evidence of the hyper-visibility of certain subjects both within and outside state borders through AI. The disproportionate engagement of racialized subjects through AI is twofold, where it makes hyper visible certain communities in spaces of carceral relations, immigration, and detention, whilst invisibilizing them in relation to consent and incorporating their concerns in the creation and deployment of the same technologies that they are disproportionately interfaced and surveilled by. Atanasoski and Vora’s (2019) conception of technoliberal efforts to disembody technologies, their design, decisions,

and impacts, which seek to evade the racial, gendered, and colonial architectures of “post Enlightenment modernity as engineered into the form and function of given technologies” was particularly valuable to this dissertation as a conceptual lens which sought to recenter the populations most engaged and harmed by AI (Atanasoski and Vora, 2019, 7)”. Therefore, this dissertation comes to challenge the notion of linear and collective benefits of AI and shows how technoliberal visions of technological advance are deeply vested in disembodied and mobilizing these technologies by rendering invisible the labour that goes into them, and by extension those who are disproportionately harmed by their operations (Atanasoski and Vora, 2019).

In highlighting the shortcomings of a rights-based framework and elevating decolonial and intersectional approaches to AI and its applications, it becomes clear that the existing frameworks used to “recognize full humanity” through “liberal politics of recognition” which seek to universalize concerns using the human rights model are gravely insufficient (Atanasoski and Vora, 2019, 8-9). This body of literature was also particularly useful in showing how the existing geopolitical and colonial divisions identify “particular regions for production and others for neglect, certain populations for exploitation, and others for disposal” when analyzing AI deployment concentrated in the West (Atanasoski and Vora, 2019, 13). AI and its varying applications are then in no way divorced from the geopolitics of the geopolitical terrain upon which private corporations and their technologies are assembled, designed, tested, and then deployed. In attending to the ways in which geopolitics implicates socio-technological innovation programs, this dissertation engaged in a critical inquiry of the ways in which the proliferation of technology in our daily lives is contributing to progress for some and retrogression for

others. In reviewing the literature on approaches to AI, this dissertation identifies and responds to the urgent need to rethink the speed at which AI is permeating the public sphere along the lines of critical inquiry (i.e., racism, coloniality, and unequal interface). It is vital that the exchange of immigrants and refugees' data, which occurs through multiple avenues between host states, private actors, donors, and a variety of other services, does not continue to tax those in need of refuge nor put migrating persons at risk through the appropriation of their data. While calls for transparency and accountability are central to the discourse, the "power of asymmetries" must also be considered in relation to how immigrants, refugees and displaced persons are engaged by and through new and emerging technologies (Madinou, 2019, 596). The imperative, highlighted throughout this dissertation, is not simply to reduce harm but to actively mitigate it and call for the inclusion of immigrants and refugees in the process of decision making and disclosure of how their data is being used to make decisions about them. Without such interventions, new and emerging technologies within the immigration sector exacerbate the inequalities they seek to overcome or diminish.

SOVEREIGNTY, AI, AND STATECRAFT

The Canadian state has long used policy as a tool to distinguish itself on the international stage. Immigration and multiculturalism policies have been particularly important to achieving such distinctions. Citing Eve Mackey, Thobani (2007) states that the policy of multiculturalism is a "mode of managing differences within the nation and at the same time, [created] a form through which the nation could be imagined as distinct from external others such as the United States (145)". Relying on Bannerji, Thobani furthers

this by asserting that Canada has continuously benefited from “presenting itself internationally as distinct from the United States” where “it should be emphasized that, rather than simply managing difference, official multiculturalism functioned as a mode of constituting this difference (Thobani, 2007, 145)”. While Canada’s goal to distinguish itself through an image of humanitarianism and internal diversity has been the subject of ongoing study, Canada’s struggle to establish itself as distinct and independent in relation to its technological dependency and the historic and ongoing national efforts to establish strong modes of sovereign science and innovation policy remains understudied. This dissertation attends to this gap in through a historical analysis and overview of Canada’s struggle to develop a meaningful national science and innovation policy and its desire to ascertain technological sovereignty, in hopes of challenging its long-standing reliance on the United States for technological and manufacturing capacity. This dissertation also demonstrates how Canada has historically used immigration programs and nationalized science and innovation policy, with the two often entangled due to Canada’s reliance on immigration programs to attract academic and technological talent, are used in the ongoing project of statecraft.

The 1960’s–1970’s were a significant period for the liberalization of Canada’s immigration policy. It was also during these years that a discourse emerged on Canada’s need to address its technological and economic dependence on the United States which subsequently truncated its national Research and Development (R&D) with both policy and funding privileging the development of branch plant economies (meaning the presence of foreign capital and corporations) in the Canadian market (Smardon, 2014). To capture the debates during these decades, I relied on Wriston’s (1988) conception of

technological sovereignty to highlight the perennial relationship between technological advancements and state sovereignty, and to dissect how breakthroughs in science and technological venture are expressions of power and a method of distinguishing the state from its national *others*. This position is furthered through Globerman's (1978) historical overview of Canada's attempts to establish and promote its industrial, scientific, and technological capacities and its failures resulting in Canada's technological and industrial capacities becoming a central policy concern by the late twentieth century. The scholarly analysis of Canada's attempts to establish technological sovereignty, is furthered by a primary examination of the Science Policy for Canada report produced by the Canadian Senate Special Committee on Science policy (1970). These documents served as evidence, illustrating Canada's century-long struggle to establish itself in the domains of scientific and technological advancement, like its American neighbour and its European allies.

The primary research of Canadian policy documents was supplemented by Smardon's (2014) critical analysis of Canadian technological dependency and concerns surrounding the United States' soft imperialism as illustrated through Canada's integration into the American economy. Canada's economic integration southward resulted in limited growth for Canada's domestic markets and further consolidation of the American economic hold in its markets (Smardon, 2014). Canadian technological dependency has long been the subject of debate and contestation, earlier interventions made by Laxer (1973, 1974, 1981, 1984, and 1987) highlighted similar concerns which support Smardon's (2014) analysis, specifically agreeing on the concerns surrounding Canada's branch plant economy, which relied heavily on businesses and multinational

corporations flag shipped abroad, specifically in the United States. However, Laxer (1984 and 1987) emphasized that the expansive and growing nature of US-based foreign ownership in the Canadian market constitutes a major barrier to the development of Canadian technological capacity. The enduring legacies of Canada's reliance on its allies for manufacturing capacity is also demonstrated through its inability to manufacture COVID-19 vaccines despite government initiatives and funding. In this context, Canada's advancement of technological sovereignty is part of a larger national project to distinguish itself from its allies, with the Pan Canadian AI Strategy serving yet another example of this process. Canada's quest for strategic autonomy in relation to building its national AI capacity and leadership, was further analyzed through a content analysis of Canada's Pan Canadian AI Strategy and The Department of National Defense and Canadian Armed Forces Artificial Intelligence Strategy to show how Canada seeks to distinguish itself and ensure independence in the emerging AI defence market(s). Through this analysis this dissertation makes an original theoretical contribution to the literature on Canadian technological sovereignty and Canadian AI politics. The emergence of Canada's AI strategy is read through Mbembe's lens of enmity, as conceptualized in his seminal work the "The Society of Enmity" (2019), constituting part of this dissertation's original theoretical contribution. Here, the development of national AI strategies in conjunction with international competitions and relations of enmity between and against states, furnishes the emergence of what I conceptualize as "Techno-enmities". The use of AI and its integration into the Canadian government and markets also constitutes a form of statecraft. Key scholars such as Hong (2022), Mbembe (2019), and Fourcade and Gordon (2020) aided the investigation on the role of AI's predictive

technologies and the market-oriented dictions of predictive governance, illustrating the convergence between private AI corporations and state imperatives, reconfiguring governance apparatus to see the world through private industry tools (Fourcade and Gordon, 2020, 93). This intervention is further supported by Lazaro and Rizzi (2023), who critically examine the promise of AI and how it has come to constitute the promise of futurity and the ability to view the future itself via pre-emptive and actuarial features. For Lazaro and Rizzi (2023), these functions portray the emerging modes of AI's value to statecraft and strengthens this dissertation's theoretical intervention on the permanence of the state of techno-enmity, where the predictive technologies continuously project the enemy on the horizon, that is ever present, but never fully comprehended or captured.

This dissertation goes on to show how AI is progressively transforming domestic economies and state militaries, giving way to the formation of AI nationalisms and thus leadership in the field becoming an issue of sovereignty (on display through nationalization of AI strategies) (Aaronson, 2024). The notion of Western sovereignty here as expressed by Agamben (via Thobani)

...relies ultimately upon the sovereign's power over life, and Agamben identifies a central paradox that lies at the heart of sovereignty, that is, the fact that the sovereign is, at the same time, outside and inside the juridical order. With the power to decide what is to be included in the law and what is to be excluded from it, the sovereign stands both above and outside the law. Moreover, even after the law has been instituted, the sovereign determines states of exception to the law, determinations that rely on the power of violence to be decisively instituted in moments of crisis. (Thobani, 2007, 36)

This conception is then expanded by Mbembe to speak specifically to the spatial relations, territorialization, and bordering practices that are expressions of state sovereignty (Mbembe, 2003). Relying on Mbembe's seminal work, *Necropolitics* (2003), and his conceptualization of sovereignty, this dissertation examined how Canada

establishes states of exception, through practices of digital and spatial interdiction that are contrary to its image as an internally diverse champion of immigration justice. This analysis relied on Mbembe's theoretical intervention to guide the empirical investigation into the relationship between sovereign grounds keeping and the extension of state boundaries through new and emerging technologies. Mbembe's conception also considered the role new and emerging technologies play in liberal statecraft, stating,

The use of new technologies has made it possible to gain access to individuals' private lives. Insidious techniques of mass surveillance, secret and sometimes improper, target people's thoughts, opinions, movements, and privacy. Aided by the heightened reproduction of the affect of fear, liberal democracies have not stopped manufacturing bogeymen apt to scare themselves ... (Mbembe, 2019, 50 - 51)

A critical gap in the literature is formed in relation to the ways the logics of statecraft permeate and extend themselves beyond physical borders through digital and AI mediated technologies and methods. The perspectives covered on AI and its use in immigration and society at large, focus heavily on AI as a technical product cast carelessly upon society. However, by reading the critical literature on AI (such as Molnar, 2023; Davidson, 2003; Brouwer, 2003) through Mbembe's notion of enmity, I argue that the deployment of AI is less about a technical product and more about a process of subject-making, and sovereign grounds keeping. Mbembe furthers this notion stating,

Neoliberalism has created the conditions for a renewed convergence, and at times fusion, between the living human being and objects, artifacts, or technologies that supplement or augment us and are in the process transfigured and transformed by us. (2019, 108)

The deployment of new and emerging technologies within the immigration sector or its convergence with programs that privilege certain kinds of immigrants at certain points in

history demonstrate the role technologies play in subject formation (i.e., Canadian programs specifying immigration for labour needs and the ongoing immigration programs for tech and IT talent). Thus, AI and its varying algorithmic applications are not simply mechanisms to accumulate data and draw neutral patterns, instead

Algorithms mostly mine metadata for the purpose of measurement and forecasting, of establishing patterns of behaviour, detecting anomalies, and recognizing an enemy. The enemy is constructed as a reality via statistics, modeling, and mathematics. (Mbembe, 2019, 109)

Mbembe's conceptualization of the role of algorithms and emerging technologies in formulating and constructing an enemy aided the analysis of AI's role in the production and enforcement of borders through the lens of enmity, where the production of digitized borders, and relationally the enforcement of sovereignty via border technologies comes to form and inform subjectivities both geographically and psychologically by way of generating the acceptable and unacceptable images of a citizen versus non-citizen.

Critical scholars of Canadian border regimes Walia (2021) and Epp (2017) demonstrate the fluid and dynamic nature of bordering strategies, ones which encapsulate processes of racialization through spatial excision, pronouncing material differences, and gendered forms of violence as administered through both the journey of immigration and its processes. To elevate qualitative methods of inquiry within the highly quantitative field of AI, this dissertation undertook a qualitative analysis of investigative journalism on the gendered and racialized experiences of refugees and asylum seekers in Canada (in particular the case of Halima Alari and her Immigration and Refugee Board (IRB) hearing in Canada), to demonstrate the highly sensitive and discretionary nature of gendered cases and the limits they present to the digitization and use of AI in border regimes and refugee processing. Primary review of refugee cases such as that of Halima

Alari and scholarly interventions are further evidenced through qualitative interviews with field experts in immigration, settlement services, and immigration law to draw out and elevate a qualitative, bottom-up analysis that includes immigration professionals to show the variations between state applications of AI and concerns within the field and field actors.

This chapter's intersectional analytic and theoretical approach synthesized critical scholarship on border management, statecraft, sovereignty, and the Canadian immigration sector's adoption of AI to highlight how AI shapes and is shaped by ongoing colonial relations and spatial geo-politics. Reading these scholars together brought to the fore how AI as a technological tool and as a field of study consistently evades discussions of its entanglements with global ordering and the social and economic politics of the terrains upon which it is conceived and operationalized. In critically examining and synthesizing interdisciplinary scholarship, this literature review allows readers to consider how AI is not a neutral tool nor simply the next step in the global march towards modernity, but a mechanism of statecraft that reinforces gendered, and racialized inequalities. In reading these theories together, readers can map how nationalized AI innovation programs and their subsequent convergence with governance apparatus further mobilizes uneven distribution of technological consequence and benefits. In de-universalizing the concerns surrounding technological and scientific innovations, readers can consider the disproportionate and hyper visibilization that immigrating communities undergo due to their disproportionate engagement by border technologies and regimes. As discussed in the Introduction chapter, this analysis and reading is supported primarily through qualitative methods, which include interviews

with immigration, legal, AI and subject matter experts, content analysis of government documentation and a survey of lay first and second generation immigrants to Canada, to center and elevate a bottom up approach to the discourse on AI technologies and its impact on immigrant communities. The methodological choices contribute to a nuanced and intersectional understanding of the racialized impact and politics of AI, statecraft, and sovereign grounds keeping in the Canadian context.

CHAPTER 3: CANADIAN IMMIGRATION AND STATE MAKING

This chapter investigates how immigration and national programs for technological innovation converge and come to enact power and stature on the international stage. I do not seek to establish parallels but instead to show how immigrants have always played a key role in how Canada seeks to establish itself on the international stage, how it distinguishes itself from its allied states, and how the privileging of certain kinds of immigrants (at certain points of history) aids the program of statecraft. This study combined the analysis of immigration and national science and technological programs to show how both programs play an interlaced role in state formation and the Canadian political imaginary.

The chapter seeks to present the following: 1) A review of the scholarly and journalistic investigations on the use of AI in Canadian immigration; 2) An overview of Canadian immigration history in relation to both the making and un-making of potential state subjects and the reproduction of the politics of citizenship enacted through new and emerging technologies; 3) An analysis of the IRCC's Chinook software program and the Canadian Global Affairs report on the automation of Privately Sponsored Refugee (PSR) applications by the IRCC, to chart the course of AI and automation emerging within the Canadian Border Service Agency (CBSA) and the IRCC ; and 4) An analysis of qualitative data collected through interviews with immigration, AI, and legal experts engaged in the field of immigration and subject matter experts on the topics of AI and immigration.

WHAT WE KNOW

Given the opaque and “Blackbox” nature of Canadian immigration decision making systems, empirical evidence remains limited on study of government and public sector use of AI. The current trajectory of related and emerging investigations on Canadian use of AI is discussed as follows. In early 2017, the Toronto Star reported on Ottawa’s plan to use computerized decision making to assess and make some decisions on immigration files that were formerly at the discretion of human officers (Keung, 2017). The article reported that since 2014, the Canadian Immigration Department had been developing predictive analytics systems to “evaluate applications in a way that’s similar to the work performed by officials today (Keung, 2017; Molnar and Gill, 2018)”. The primary foci of the program was to “distinguish between high-risk and low-risk applications” and to provide “operational efficiency by reducing processing times while strengthening program integrity (Keung, 2017).” The article cites the department’s spokesperson Lindsay Wemp who described the automated systems to be deployed as follows:

Predictive analytics models are built by analyzing thousands of past applications and their outcomes. This allows the computer to ‘learn’ by detecting patterns in the data, in a manner analogous to how officers learn through the experience of processing applications. (Keung, 2017)

While Wemp’s comments were helpful in illustrating the foundations of automated decision making and how the intended decisions were to be reached, they did not reveal the extent of its use and functions. In the following year, The Citizens Lab at the University of Toronto released a report titled “*Bots at the Gate*”, highlighting the risks and ramifications of AI-based decision making in the Canadian immigration system (Molnar and Gill, 2018). For these authors, the Canadian government’s posting of a

tender notice for an AI “solution” for front-end decision making, the development of an applications merit determining systems, and the singling out of “Humanitarian and Compassionate applications and Pre-Removal Risk Assessments” raised significant concerns (CBC, 2018; Molnar and Gill, 2018). The report highlighted the ways in which algorithms can be used to determine a variety of immigration objectives such as screening for fraud, incomplete applications, and screening for what is argued to be the most controversial category of risk, refugees and humanitarian applications (Molnar and Gill, 2018, 32).

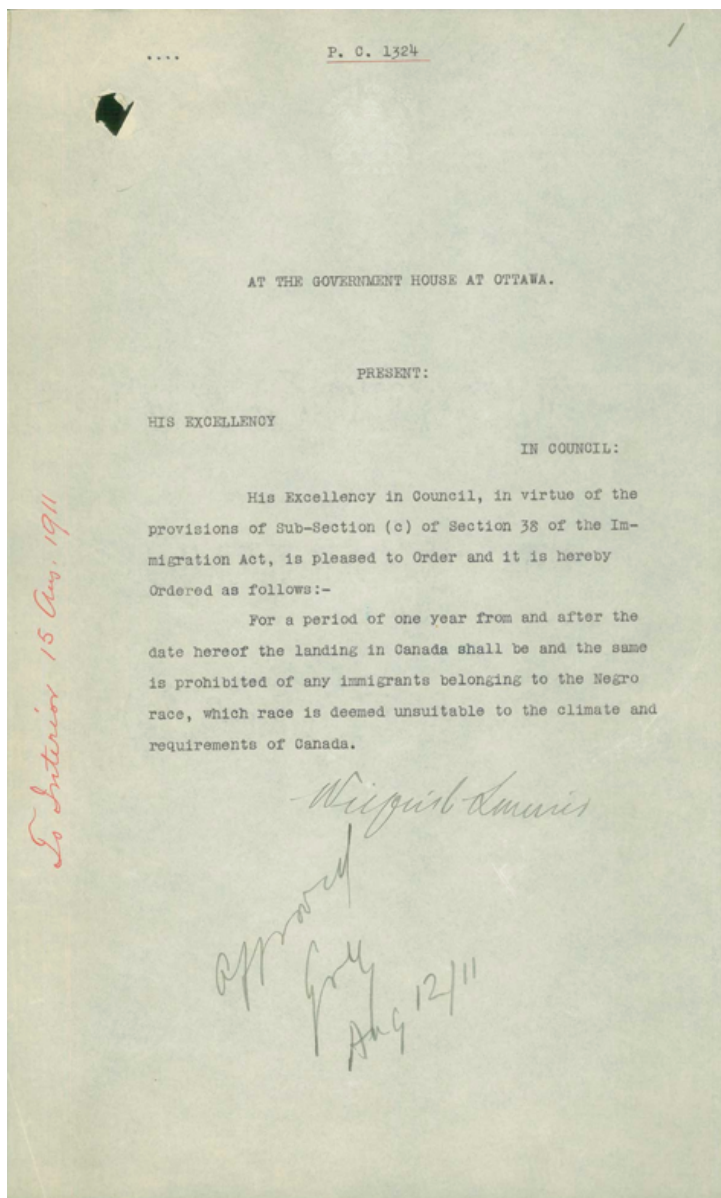
For Molnar and Gill, the opacity of immigration and refugee decision making in Canada generates an environment that is highly susceptible to algorithmic bias and discrimination (Molnar and Gill, 2018, 33). Molnar and Gill furnish their concerns with the example of predictive algorithms used by the Designated Countries of Origin list, which determines which country is “safe based on past grant rates of refugee status (2018, 33). This blanket approach simply considers which countries do not “normally produce refugees” and those that “respect human rights”, however, the list does not consider the intersectional nature of vulnerabilities, nor does it account for the shifting nature of politics that may make a country unsafe (Molnar and Gill, 2018). The limited protections offered to vulnerable groups making compassionate applications means that the use of biased algorithms would have “profound ramifications on a person’s safety, life, security, and mobility (Molnar and Gill, 2018, 34).” As the report was developed, Molnar and Gill filed a total of 27 access to information requests, all of which remained unanswered, adding to the continued opacity and limited public awareness of technological offloading in the Canadian immigration system (2018). Most recently,

Nalbandian called for transparency in Canada's use of AI to screen immigrants citing New Zealand's use of AI to "track and deport "undesirable" migrants as an example (Nalbandian, 2021)". For Nalbandian, transparency could have been achieved by publicizing the IRCC's pilot AI program, encouraging public dialogue and trust in emerging AI applications (Nalbandian, 2021). While there is no doubt that transparency within the sector could afford some forms of accountability in relation to the kinds of data being used to facilitate decision making, as interviews and the analysis of Canadian immigration policies will show, there is more at stake with the use of AI in (im)migration decision making and border enforcement.

CANADA'S IMMIGRATION HISTORY

A discussion of Canadian immigration policy and its history is pertinent to understanding the workings of modern bordering techniques and technologies, specifically the process of constructing desirable and undesirable subjects which AI and other digital mediums are used now to sieve for. A review of Canadian immigration policy and history show how many of the inclusion and exclusion policies surrounding entrance to Canada and naturalization centered racial exclusion. While immigration is generally regarded a matter of international relations and thence movement becomes subject to individual state relations and priorities. The social categories of race and gender are "critical to the efficacy of colonization" and brings to the fore Canada's ongoing enactment of colonial international orderings in relation to the formulation of its immigration programs (Chowdhry and Nair, 2002,17). Within this context, immigration programs and migratory patterns have played and continue to play a key role in the Canadian project of state making and identity formation, not unlike the role grand breakthroughs in innovation

play for state making (Jasanoff, 2004). On the one hand, Canada seeks to be recognized as the global site of humanitarianism, peacekeeping, and multiculturalism, and on the other hand its colonial past and present are enacted through immigration policies which differentially mediate the admission of certain groups of (im)migrants. For Matas, simply stating that racism is a part of Canadian immigration policy is insufficient; rather, he argued that “we should talk of racism as Canadian immigration policy (1985, 8)”. In his review of Canadian immigration policy spanning 1910 to 1978, Matas points out the highly racialized nature of Canadian (im)migration laws and policies (1985). One of the earliest examples of race-based exclusion in Canadian immigration programs targeted African Americans and the Black community at large. In fact, the Order in Council from 1911 (illustrated below) outlined the prohibition of Black immigrants coming to Canada **(Figure 1)**.



For a period of one year from and after the date hereof the landing in Canada shall be and the same is prohibited of any immigrants belonging to the Negro race, which race is deemed unsuitable to the climate and requirements of Canada.

Figure 1. *Orders in Council – Décrets-du-Conseil*. RG2-A-1-a, volume 1021, PC 1911-1324. August 12, 1911. *Courtesy of Library and Archives Canada.*

The Canadian immigration Act of 1910 gave Cabinet powers to exclude immigrants and place financial requirements for entry of any race or region between 1910 to 1978

(Matas, 1985, 8). In 1919, Canada brought into law that,

“Cabinet could bar immigrants of any race because the immigrants were deemed undesirable “owing to their peculiar customs, habits, modes of life and methods of holding property and because of their probable inability to become readily assimilated (Matas, 1985, 8)”.

The special powers given to Cabinet to produce barriers and prohibit entry was carried out differently for immigrants from the global South. A condition requiring immigrants seeking entry into Canada to possess a minimum amount of \$25 was revised to \$200 for “all Asiatic immigrants” in June of 1908 (8. Matas, 1985, 8). For perspective, \$25 CAD would amount to \$700 CAD today, whereas \$200 CAD would amount to an estimated \$6,000 CAD today.¹ The difference is roughly 8.5 times more than the financial minimum placed on non-Asian immigrants. By 1914, Cabinet had passed an “Order in Council” (under the 1910 Act mentioned above) stipulating that “no immigrant of any Asiatic race would be permitted to land in Canada” unless they had \$200 CAD (Matas, 1985). 1914 was also the year in which the Komagata Maru, a vessel (renamed Guru Nanak Jahaz) carrying 376 passengers of Indian descent, was forced to turn back to India (Vancouver.ca). The incident is now memorialized in Vancouver’s Coal Harbour Park (**Figure 2, Figure 3, Figure 4**).

¹ Inflation estimates are approximated and rounded from 1914, as data on 1908 CAD currency equivocation were unavailable.

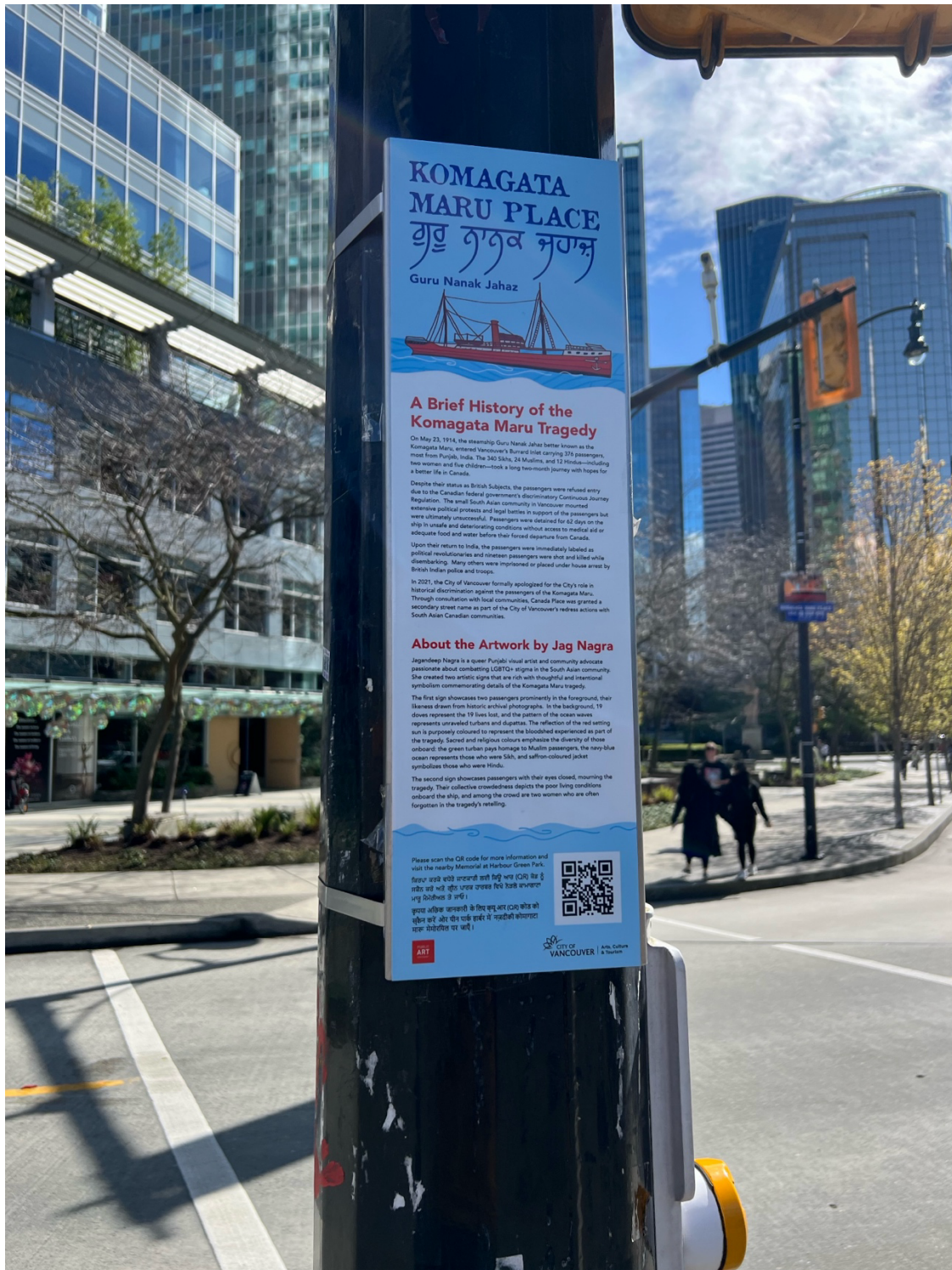


Figure 2. *Komagata Maru Memorial, Historical Plaque and Street Name.* Photograph taken by author on April 21st, 2024, Vancouver, British Columbia.



Figure 3. *Komagata Maru Memorial, Names of Passengers.* Photograph taken by author on April 21st, 2024, Vancouver, British Columbia.



Figure 4. *Komagata Maru Memorial, Passengers Aboard the Vessel.* Photograph taken by author on April 21st, 2024, Vancouver, British Columbia.

A few months after the 1914 order was passed, Munshi Singh landed at the Port of Vancouver in May of 1914, with \$20 CAD in his possession. Under the act, Singh was detained and ordered to be deported (Matas, 1985). Singh appealed the deportation order to the Supreme Court of Canada and the Court of Appeal of British Columbia, losing both legal battles (Matas, 1985). Justice McPhillips (from the British Columbia Court of Appeal) agreed with the court's decision and issued a lengthy judgement as follows:

.... The Hindu race, as well as the Asiatic race in general, are in their conception of life and society fundamentally different to the Anglo – Saxon and Celtic race and European races in general. Further acquaintance with the subject shows that the *better classes* of the Asiatic races are not given to leave their own countries...and those who become immigrants are, without disparagement to them, undesirables in Canada, where a

different civilization exists. The laws of this country are unsuited to them, and their ways and ideas may well be a *menace* to the well-being of the Canadian people.

.... The Parliament of Canada --- the nation's Parliament, may well be said to be safeguarding the people of Canada from an influx which...might annihilate the nation and change its whole potential complexity, introduce Oriental ways as against European ways, Eastern civilization for Western civilization and all the dire results that would naturally flow therefrom...

In that our fellow British Subjects of the Asiatic race are of different racial instincts to those of the European race...in their own interests their proper place of residence is within their respective countries, not in Canada where their customs are not in vogue and their adhesion to them here only gives rise to disturbances destructive to the well-being of society...Better that peoples of non-assimilative --- and by nature properly non – assimilative races should not come to Canada, but rather that they should remain in residence in their country of origin and there do their share as they have in the past, in the preservation and development of the Empire. (McPhillips via Linden, 1961, 247 - 248)

McPhillips' overt racism in supporting Munshi Singh's deportation reveals how the "dehumanization and degradation of the racialized colonial subject" and more broadly the social categories of race and racialization were critical to the efficacy of differential subject formation and engagement even between British colonies (Chowdhry and Nair, 2002, 17). While McPhillips is incorrect in assuming Munshi Singh as a Hindu (he was Sikh), this homogenization of Asian cultures and religions and the construction of an 'annihilating' threat to the nation and its Euro-Western identity furnishes Mbembe's notion of the moving object and the perennial state of enmity necessary to the project of statecraft, bordering, and sovereign grounds keeping. It is also important to highlight the projection of colonial logics in McPhillips' judgement, where logics of 'annihilation' are more akin to the Canadian programs of colonisation both internally against the Indigenous peoples and its participation in colonial operations in former British colonies abroad. Additionally, while recognizing Munshi Singh as a British subject, McPhillips also contends that the place of 'Asiatic' colonial subjects is to further empire, not seek

betterment, nor expect membership as an 'equal British subject', differentiating Canada as a White dominion under the British Empire in comparison to those from racialized colonies within the global South. While Munshi Singh's deportation seems simple on the surface, based on lack of the minimum funds, he was also deported on the basis that he did not follow the Continuous Journey Rule (Matas,1985,9). Under the Immigration Act of 1908, Cabinet also imposed a rule which,

...prohibited the landing of any immigrant who came to Canada otherwise than by continuous journey from the country of which he was a native or naturalized citizen with a through ticket purchased in that country or prepaid. At that time, it was impossible to purchase in India or prepay in Canada for a continuous journey from India to Canada. (Matas,1985, 9)

The creation of additional barriers through policy for migrants from the global South was a consistent practice until the 1980's in the Canadian immigration system. Apart from financial requirements and the continuous passage rule, Canada also placed caps on how many immigrants could be accepted from specific countries. In 1956, when the prohibition for Asian immigrants was lifted, it was replaced with:

... agreements with the Governments of India, Pakistan, and Ceylon, limiting entry from each of these countries to 150 from India, 100 from Pakistan, and 50 from Ceylon annually, in addition to immediate relatives of Canadian citizens. (8, Matas, 1985)

In simultaneity with the more generalized Immigration Act (and other provisions made under it) there were specific and racially motivated immigration acts targeting Chinese immigrants. Chinese immigrants not only had to show sufficient funds to sustain themselves, but also had to pay for admission, under the Chinese Immigration Act of 1885, which required a payment of \$50 per Chinese immigrant. This figure was increased to \$100 in 1900, and \$500 in 1903. By 1923, Chinese immigration was prohibited altogether (Matas,1985, 9).

The Second World War amplified the perceived threat that migrants, and even racialized second-generation Canadians posed for Canadian administrators. In 1942, an estimated 22,000 Japanese Canadians were forced into internment camps under the War Measures Act, despite over half of those interned, had been born and raised in Canada. The events of internment are now acknowledged as a grave human rights violation, and a shameful part of British Columbia's past ([B.C Legislature](#)). Even when the Second World War ended, the Canadian federal government "began to offer internees the choice of deportation to Japan or relocation east of the Rocky Mountains ([B.C Legislature](#)).” Of particular importance is how legal constructs of citizenship and the enfranchisement Canada offered were differentially applied to racialized Canadians. The deportation orders for Japanese Canadians and program were brought before the Supreme Court of Canada and the Privy Council in England, "... on the ground that Canada could not deport citizens born in Canada. It would only deport aliens. Both courts ruled that Canada had the power to deport its own citizens" (Matas.1985, 9).

The differential treatment of immigrants was often justified based on citizenship status, where non-citizens were not afforded legal protections. Yet, in the case of Japanese Canadians, citizenship nor naturalization guarantee legal protections for racialized persons. Additionally, while specific immigration policies were used to prohibit and limit the number of racialized immigrants, during World War II, there were no specific laws used to ensure that no Jewish refugees were accepted to Canada, it was simply antisemitism (Matas,1985,9). The Jewish experience with Canadian immigration during World War II highlights: "... that you do not need laws to have racial

discrimination in immigration. All you need is unlimited discretion. An unsympathetic public leadership, or racists in office are enough to lead to racism in immigration...” (Matas, 1985, 9).

Matas’s historical account reinstates the critical role that racialization plays within the context of migration management. During World War II, known antisemite and Director of the Government of Canada’s Immigration branch Fredrick Blair, popularized the notion of ‘none is too many’ in relation to Jewish immigrants, which influenced the turning away of the MS St. Louis, carrying over 900 German Jewish passengers seeking refuge in Canada (Matas, 1985, 9; [MS St. Louis Apology](#)²). This historical analysis of Canadian immigration policies (both internal and external) and national reception of immigrants and refugees from the early 1900’s to the 1980’s is important for the understanding of both legal and extra-legal measures which result in differential treatment of racialized immigrants and refugees. Furthermore, it maps the fluid and transformative nature of legal enfranchisement of immigrants for the purposes of statecraft. In the context of Canada’s incorporation of digital and AI based modes of processing into its immigration systems, the overview of legal and extra-legal exclusionary immigration policies and practices map the historic terrain upon which the incorporation of digital sieving is deployed.

Canada’s immigration history acts as evidence of the role racial constructs have played in the colonial spatial and geo-political management and restriction of mobility,

² On November 7th, 2018, former Prime Minister Justin Trudeau delivered a formal apology in the House of Commons to the passengers of the MS St. Louis and the Jewish community within Canada and the world. The 1939 MS St. Louis departed Germany, carrying over 900 Jews fleeing Nazi persecution were denied entry to Canada. The Jewish refugees were turned away due to the anti-semitic, ‘none is too many’ Canadian immigration policy.

with reference to its immigration reforms in the post war era, specifically the Immigration act of 1962. Among racial barriers to immigration, archival research showed that the Canadian immigration system's inclusion of non-European immigrants prioritized a 'self – sufficient' immigrant (*Figure 5*).

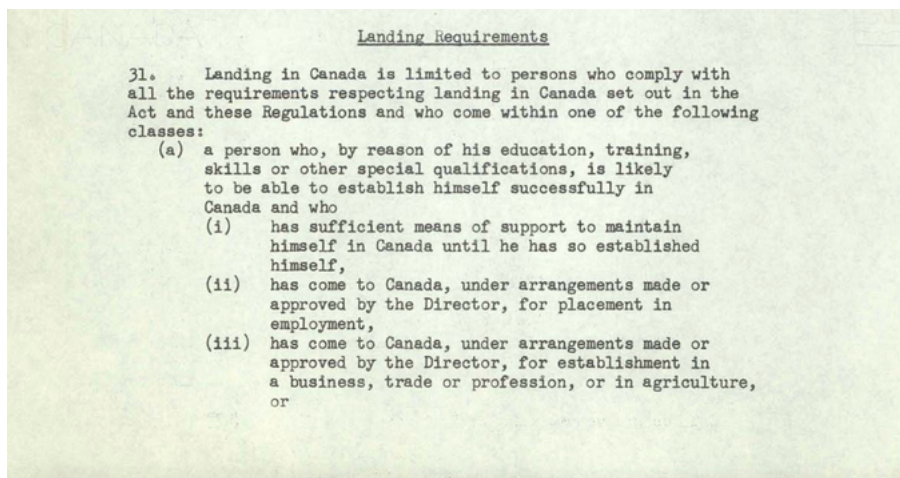
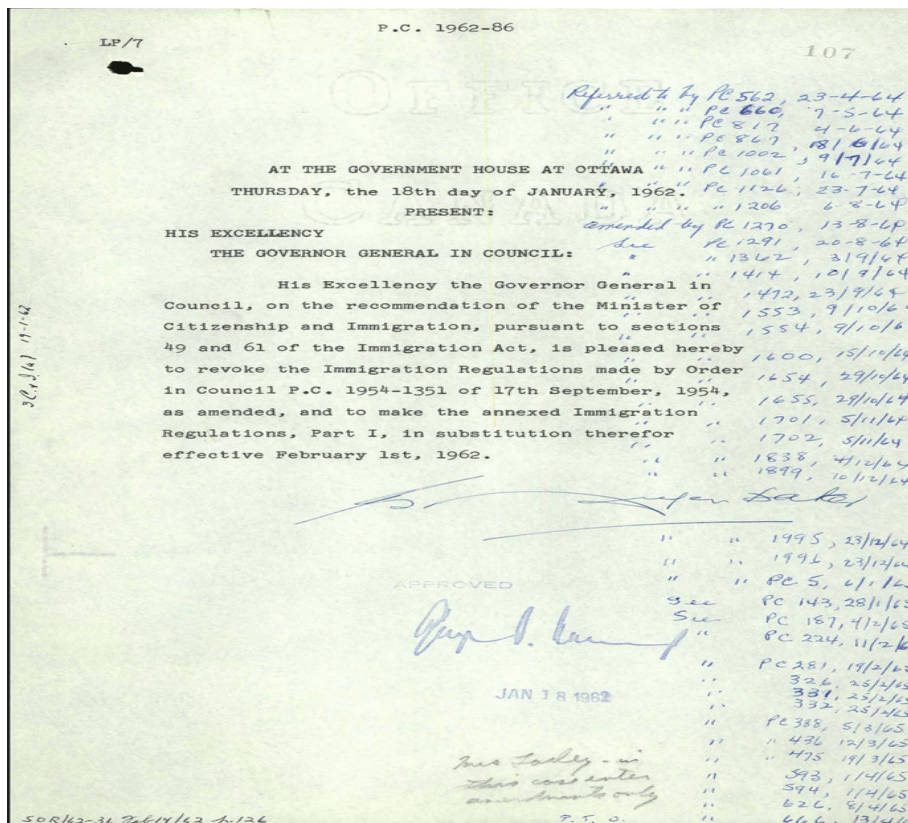


Figure 5. *Immigration Act, Immigration Regulations, Part I, Amended*, RG2-A-1-a, volume 2269, PC 1962-86, January 18, 1962; *Immigration Act, Immigration Regulations, Part II, Amended*, RG2-A-1-a, volume 2269, PC 1962-86, February 1, 1962. Obtained via Pier21.ca.

Of particular interest to this dissertation is Section 31 of the amended Immigration Act and Immigration Regulations 1962. Using the record as evidence, the landing requirements clearly outline the entanglements of the domestic immigration policy with the larger global project which designates the racialized non-subject as the laboring body whilst simultaneously depicting it as undesirable and disruptive to the Canadian national image. Subsections i, ii, and iii of Section 31, outline the importance of monetary self-sufficiency, employment, and skills that can yield employment and self-sufficiency. At the forefront of this analysis is the limitation of the legal policies and expressions in accounting for the humanity of non-European subjects.

This record serves as evidence for the limitations of the liberal policy programs where inclusion and legal protections, demonstrating why discourse must move beyond the singular Western legal framework and notions of human rights grounded in Western liberal reasoning as the primary means of justice and harm reduction. While the amendment had been celebrated as historically creating diversity, a closer examination reveals that it was in fact a sieving mechanism for laboring bodies, discriminating against racialized migrants in a way that advanced perennial stereotypes of the immigrant and refugee. The record of the amendment depicts the exclusionary nature of Canadian immigration law from its inception. In putting together financial conditions on landing requirements for non-European citizens, the legal order and the state create windows for discrimination which then impact present day readings of compassionate applications.

Immigration continues to play a key role in Canadian statecraft, in 2018, former Prime Minister Justin Trudeau issued an official apology to the Jewish passengers aboard the MS St. Louis in 1939, temporalizing racism as something of the past and the event as a marker of how far Canada has come since its antisemitic past ([MS St. Louis Apology](#)). Between the 1970's to 1990's Canada underwent changes to its immigration programs to align itself with a more globalized world order and thus more globalized immigration programs (Abu – Laban, et.al, 2022). However, Abu-Laban et.al. highlight the “...paradox between Canada’s openness to some alongside newer measures aimed at controlling the movement of others across borders and into the political community (Abu – Laban et.al, 2022, 13).” Despite liberalization of Canadian immigration programs economic considerations remain a key method of migration management within the OECD countries and Canada (Abu – Laban et.al, 2022, 15).

Based on the historical overview of Canadian immigration policies, economic considerations have always been a key part of immigration allowances and have also influenced to whom Canada afforded landing rights. The “specific focus on skills” and the adoption of “measures to attract highly skilled migrants” is the new face of economic and financial considerations and barriers in Canadian immigration policy (Abu – Laban et.al, 2022, 16). Canada has a long-standing program which leverages entry through an exchange of labor (i.e., Temporary Foreign Worker Programs). These programs rely on the divestment from citizenship to enable low wage employment and lack of access to social programs (healthcare, education, etc.). However, there are programs such as “Express Entry”, through which the labour market (employers) actively engage in the selection of immigrants they deem suitable for their labor needs (Abu – Laban et.al,

2022, 16). Such programs have been “...characterized by Ayelet Shachar as a “race for talent” and is often coupled with the extension of citizenship. In this way, citizenship is characterized as a recruitment incentive” illustrating the deep entanglements between statecraft, immigration, and innovation through labouring programs (Abu – Laban et.al, 2022, 16).

These specific modes of migration, where programs such as Temporary Foreign Worker and the Express entry program, show that the divestment from citizenship avenues are a productive means for Canadian statecraft, one path ensures the capture of highly educated, trained, and skilled immigrants and the other ensures that working class immigrants cannot access pathways to become Canadian citizens. In both circumstances, Canada builds an image of itself both in terms of talent required for its innovation landscape and labourers required for its agrarian industry, food chains, and domestic labour needs. Within this context, the highly skilled or educated immigrant is viewed as an “advantage within the global context” or as a method of “harnessing the economic benefits from immigration” which remains a priority for the Canadian economic and immigration policy (Abu – Laban et.al, 2022, 21)”. Despite the distinctions made between refugees and immigrants (given that refugees are forcibly displaced or fleeing violence), a similar modality was applied to the reception of refugees in Canada, where regimes of strategic inclusion and exclusion were used for Canadian state building. In 2018, Canada piloted a program called the “Economic Mobility Pathway” through which it sought to “facilitate the entrance of highly skilled refugees to meet labor market needs (Abu – Laban et.al, 2022,21).”

An overview of the history of Canadian immigration policies also revealed the differential nature of immigration reception based on race and religious identity. Despite its internationally recognized tradition of welcoming and resettling refugees, the differential quotas and response times suggest otherwise (Abu – Laban et.al, 2022). Most recently, in 2022, within five weeks of the Russia – Ukraine war,

“...the Trudeau government’s response marked a departure by allowing for an unlimited number of Ukrainian nationals (though not nationals from other countries) to apply to Canada to stay for at least two years as they assess their future (Abu – Laban et.al, 2022,71)”.

It was not only the Trudeau government, the global response to the Ukrainian plight was also entirely different to that of their response to Syrian or Afghani refugees. A host of European countries openly differentiated between refugee groups stating [in relation to the wave of Ukrainian refugees],

These are not the refugees we are used to; these people are Europeans," Bulgarian Prime Minister Kiril Petkov told journalists earlier this week. "These people are intelligent. They are educated people.... This is not the refugee wave we have been used to, people we were not sure about their identity, people with unclear pasts, who could have been even terrorists ...In other words, there is not a single European country now which is afraid of the current wave of refugees. ([CBC / The AP. 2022](#))

While such remarks were met with general backlash, they nevertheless illustrate the politically motivated and racially defined nature of refugee mobility and acceptance ([CBC / The AP. 2022](#)). Petkov makes open associations of intelligence and high education with Ukrainian refugees, associating refugees from Muslim countries with harm and criminality, with an emphasis on an ‘unclear past’ which aligns with the generalized disproportionate surveillance of Muslim refugees and their differential engagement by immigration officials. In the Canadian context, between 2014-2015, former Prime Minister Steven Harper’s Conservative government made “culturalist

arguments” which favoured religious minorities from Syria, specifically non-Muslims (Abu – Laban et.al., 2022, 72). Canadian national security required all Syrian refugees referred by the United Nations High Commissioner for Refugees (UNHCR) to “be vetted by the Prime Minister’s Office (PMO), as opposed to the normal vetting practice by Canadian immigration officials (Abu – Laban et.al, 2022, 72).” In September of 2015, the image of Alan Kurdi, a three-year-old Syrian refugee who had drowned trying to reach the Greek Island of Kos, challenged Canada’s distancing from the Syrian refugee crisis (Abu – Laban et.al, 2022, 72). It was not until Alan Kurdi’s Canadian aunt, Tima Kurdi, revealed that she had “made an urgent and futile application to sponsor family members to Canada” that there was a shift in media attention, and the Canadian reception of Syrian refugees became the subject of internal debate and policy priority (Abu – Laban et.al, 2022, 72). The image of Alan Kurdi, his aunt’s plea for the world to step up, and Harper’s vetting program, aided Justin Trudeau’s electoral victory, which ran on the (later fulfilled) promise of welcoming and resettling 25,000 Syrian refugees (Abu – Laban et.al, 2022, 73). Prime Minister Justin Trudeau’s policies and rhetoric of inclusion were met with positive international fervor, elevating the Canadian national image as distinct from its southern neighbour. The Trudeau government differentiated itself from its American counterpart again following President Donald Trump’s travel ban which targeted predominantly Muslim majority countries, by posting the famous tweet via Twitter (now X) illustrated below (**Figure 6 and Figure 7**):



Figure 6. Image of Tweet by @JustinTrudeau, posted on January 28th, 2017.



Figure 7. Welcome to Canada Tweet by @JustinTrudeau, posted January 28th, 2017.

Both the hashtag #WelcomeToCanada and photographs of Trudeau welcoming Syrian refugees at the airport went viral (Ljunggren and Paperny, 2017). The Trudeau government exercised a particular form of inclusion which was productive for the building of a distinct national image for Canada and Canadians. This image was more in line with its former tradition of resettling refugees as follows: “11,000 Czechs in 1968, 7,000 fleeing Uganda in 1972, 7,000 from Chile in 1973, 60,000 Vietnamese between

1978 and 1980, and 5,000 Kosovars in 1999 (Abu – Laban et.al.2022, 73).” These resettlement efforts earned Canada the United Nations Nansen Medal, awarded to “an individual, group, or organization in recognition of extraordinary services to refugees” for its “innovative system of private sponsorship involving the Canadian public... (Abu – Laban et.al, 2022, 74)”. However, despite the Trudeau government’s position on the Syrian refugee case, gaps persisted in its reception of Ukrainian and Afghani refugees. In October 2023, the government of Canada published the “CIMM – Comparisons of the Immigration Responses to Crises in Ukraine and Afghanistan ([CIMM Facts & Figures. 2023](#)).” The publication highlights that:

As of September 30, 2023, approximately 185,753 Ukrainian nationals have arrived in Canada under the Canada – Ukraine Authorization for Emergency Travel (CUAET). Canada committed to resettling at least 40,000 Afghan nationals by the end of 2023. As of October 12, 2023, approximately 39,730 Afghans have arrived in Canada.

The Government of Canada is committed to operating a fair and non-discriminatory immigration system, As part of this commitment, IRCC is looking closely at eligibility criteria through the lens of how they impact racialized clients to ensure its programs, policies, and processes are fair, transparent, equitable, and culturally sensitive. ([CIMM Facts & Figures. 2023](#))

The publication also emphasized the key difference which (supposedly) guides the differences in response and number of refugees accepted. According to the publication, the Afghani refugees “require a permanent protection solution” while the Ukrainian refugees needs are “temporary”. Thus, Ukrainian settlers were offered “...free extended temporary status for up to three years with options to work, study, or stay in Canada ([CIMM Facts & Figures. 2023](#)).” However, and of particular note for this study, Ukrainian groups were exempt from the biometric data collection, where as it was required that all “all Afghani nationals between the ages of 14 and 79 must complete biometric enrollment before final approval of their applications (**Figure 8**).

Supplementary Information

- Biometrics collection is mandatory for all foreign nationals between the ages of 14 and 79 who are applying for, claiming or requesting temporary residence, permanent residence or refugee protection, unless otherwise exempted (e.g. electronic travel authorization applicants, United States nationals).
- The decision to exempt the biometrics requirement for specific cohorts of Ukrainian nationals was made based on an assessment of risk unique to the region and situation, including security, operational and humanitarian considerations.
- All Afghan nationals between the ages of 14 and 79 must complete biometrics enrollment before final approval of their applications.

Date modified: 2024-02-12

Figure 8. *CIMM Facts & Figures, 2023*, Courtesy of Immigration, Refugees and Citizenship Canada, <https://www.canada.ca/en/immigration-refugees-citizenship/corporate/transparency/committees/cimm-october-24-2023/comparisons-crises-ukraine-afghanistan.html>.

The differential reception and engagement with biometric technologies and the data collection practices targeted specifically for Afghan nationals citing risk management, illustrates the differential application of humanitarian exceptions. The difference in Canadian reception towards Afghan refugee's is further pronounced by the prerequisite of biometric enrollment acting as a barrier to the final approval of applications for refugee status. This also presents challenges to the urgent nature of seeking refuge or asylum, preventing those who cannot access or submit biometric data the opportunity to obtain refugee status. Additionally, the very program which earned Canada the UN Nansen Medal, was also one of the first to become automated using AI. As of 2024, the IRCC has now automated the processing of Privately Sponsored Refugee (PSR) applications. Thus, not only are refugees differentially received and prioritized, but they are also differentially engaged by Canada's use of AI in immigration.

THE CHINOOK CONTROVERSY

To highlight the differential engagement of immigrants to Canada by border technologies, I use the Chinook software case as an example to elucidate the deployment of migration management technologies at the Canadian federal level. Chinook, an excel-based software, has been in use since 2018 by the IRCC to process immigration applications (Edwards et.al. 2024). Charting the course of AI's integration into the Canadian immigration system, warrants an analysis of the Immigration, Refugee, and Citizenship Canada's (IRCC) use of the Chinook software, as it illustrates the emerging digitization and technological augmentation of the IRCC's decision making process.

In 2018, Canadian immigration was scrutinized for the denial of visas of African researchers invited to the Black in AI workshop, held in collaboration with the Conference on Neural Information Processing Systems (NeurIPS), one of the largest and leading AI conferences (Hutson, 2018). The NeurIPS conference took place in Montreal, to which over 200 researchers from Africa had been invited to participate. However, over half of the visa applications were denied, with many approvals arriving so late that researchers were unable to attend the conference (Hutson, 2018). These visa challenges came at a time when Canada was actively taking steps "to advance the country's standing in AI and the field aim[ed] for greater inclusivity (Hutson, 2018)". Some invitees from Eastern Europe and Asia were also denied visas for NeurIPS, however, the differential rejection and "no-response rate for Africans – nearly 50 % - 'raised the possibility that bias, discrimination, and racism are part of the explanation (Bengio via Hutson, 2018).'" The article cited that the most common rationales for denying a visa are lodged in the fear that the applicant may not return home (Hutson, 2018). In expressing these concerns,

border officials seemingly paid little heed to the letters of invitation and recommendation that were provisioned by Yoshua Bengio, an organizer of NeurIPS and professor at the University of Montreal (Hutson, 2018). In relation to the fears of applicants not returning home post conference, Bengio asked:

Why would a Ph.D. student in Africa doing research in AI become an illegal immigrant in Canada and end up washing dishes and living undercover... We all know that their skills are in high demand and that they'll be able to get very good jobs almost anywhere. (Hutson, 2018)

Just a day prior to the Black in AI workshop and NeurIPS conference, Canadian Prime Minister, Justin Trudeau had visited Element AI (where Bengio was co-founder) and announced, “an additional \$230 Million [CAD] in federal funding for the field”, when reporters asked him to comment on the issues regarding Black in AI attendees, he advised that someone would investigate the matter (Hutson, 2018).

In the five-year span that followed the conference, disproportionate visa denials continued for African applicants. The IRCC “reportedly rejected 59% of the visa applications from English – speaking Africans and 74% from French – speaking Africans seeking to study in Canada’s colleges and universities” between 2018 to 2023 (Greenfield, 2023). Within this same time frame, lawyers and journalists began to investigate the differential and continuous rejection of francophone African immigrants, with a 2021 lawsuit revealing the use of a software called Chinook had been in use “...since 2018, approximately the same time application refusal started spiking (Edwards, Blottiere, and Roberge, 2024).” The unannounced deployment of a digitally mediated (suspected AI) program and the revelation that the “IRCC handled the coding and deployment of the technology in rather shady and opaque ways” further created

speculation that the new software was responsible for the disproportionate rates of visa refusals (Edwards, Blottiere, and Roberge, 2024). Edwards et.al. state that the

lack of information, combined with knowledge that IRCC was experimenting with AI since 2018, quickly fomented a debate in which civil society actors raised questions and started speculating on the technology's very nature and its potential impacts, i.e., if it was the main cause of the aforementioned spike in refusals or if it was instead a manifestation of deeper, more systemic forms of racism made in Canada. (Edwards et.al, 2024)

Prior to investigating what Chinook is and delving into the discussions concerning its status as AI or not, it is important to recognize Chinook as a premonition of the “proliferating deployments of machine learning and other ‘smart technologies’ in public administration’s day to day operations” --- but also more broadly how Chinook comes to constitute forms of digitally mediated statecraft in its integration into immigration systems and in its deployment itself (Edwards et.al, 2024)”. Here, immigration communities become subjects of technological governance and processing mechanisms without explicitly consenting to these processes. The decision to immigrate or travel itself instigates and initiates their subjection to AI research and application. The IRCC defined Chinook as follows:

Chinook is a Microsoft Excel – based tool developed by Immigration, Refugees and Citizenship Canada (IRCC) for temporary resident applications processing to increase efficiency and to improve client service...It does not utilize artificial intelligence (AI), nor advanced analytics for decision making, and there are no built-in decision-making algorithms.

and

According to IRCC Chinook is a digital tool designed and coded “in house” by its personnel. It is an interfacial technology that is embedded within Microsoft Excel, meaning that it is viewed by humans as a visual spreadsheet. From Excel, Chinook interacts with the Global Case Management System, a broader database that tracks and records the information required to process citizenship and immigration dossiers The IRCC officers (or decision-makers) view and interact with the displayed information through different modules, all centralized in a

single interface or dashboard. Importantly, this organization through condensation of documents allows the decision-maker to treat multiple dossiers by grouping them—that is, sorting them out through bundling and hierarchization. (Edwards et.al. 2024)

The IRCC’s definition exercises a distancing from AI by placing an emphasis on neutralizing fears associated with using AI in its operations. The definition suggests that there is no involvement of AI in its decision making. However, the subject of debate here is not whether Chinook constitutes AI, but rather how its use signifies the integration of technological augmenting or facilitating into the process of decision making, and how such automation is conceived through socially stratified race relations. For Edwards et.al, the IRCC’s claim that Chinook is not AI does not counter the fact that Chinook makes visible “risk indicators” from the accrued files (2024). This process of visibilization generates specific formulations of information and risk factors. In turn, the program generates “a list of possible reasons for refusal, which are again, literally viewed by the decision – maker” (Edwards et.al, 2024).

Despite IRCC’s insistence that Chinook “...does not fundamentally alter the decision-making process”, the process of rendering certain information visible, the sieving for valuable data constellations, making actionable certain information and factors over others, and the modes of social classification renewed by new and emerging technologies replicate the social and political orders in place, thus impacting decision making (intentional or otherwise) ([CIMM – Chinook 2022](#)). However, the IRCC seems to evade questions which form connections between Chinook’s operations to the broader issues of discrimination and racism. However, it is impossible to sidestep the role race and racialization come to play in the process of immigration which is now off loaded on and further pronounced through, the use of immigration management technologies and

tools. The IRCC argued that the quiet deployment of Chinook was justified because “Chinook is not AI and therefore doesn’t need the oversight (House of Commons 2022 via Edwards et.al, 2024).” However, Tao (2022) refutes the IRCC’s claim as follows,

Chinook directly assists an Officer in approving or refusing a case. Indeed, Officers have to apply discretion in refusing, but Chinook presents and automates the process. Furthermore, it has fundamentally reversed the decision-making processing, making it a decide first, justify later approach with the refusal notes generator. Chinook without AI generating the framework, setting up the bulk categories, automating an Officer’s logical reasoning process, simply does not exist. (Tao, 2022)

Using the IRCC’s own definitions on automated decision support systems and process automation, Tao’s review of the Chinook manual highlights (**Figure 9**) that the emphasis of Chinook simply making visible or collating data points and auto – populating fields with information crosses into the jurisdiction of automated decision support (Tao, 2022).

2. Final Decisions: REFUSALS

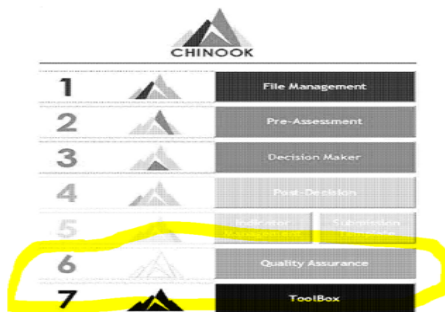
- 1) After selecting or viewing a file, click the Refused button. The Refusal pop-up window will appear.
- 2) **Note:** the **Generate Refusal Letter Checkbox** will be checked as a default. If a refusal decision is exported to GCMS using the Export to GCMS button, a refusal letter will automatically be generated in GCMS based on the exported refusal grounds.

Unchecking the box will stop the refusal letter from being automatically generated. This will allow additional edits or amendments to the refusal letter in GCMS.

- 3) Refusal Letter Intros:

For WP, SP-EXT, WP-EXT, select the *Refusal Letter Intro* type from the drop-down box.

Module 6 and 7 Chinook

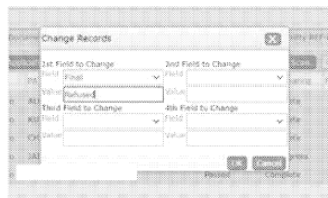


Bulk Refusal in GCMS (PM-03)

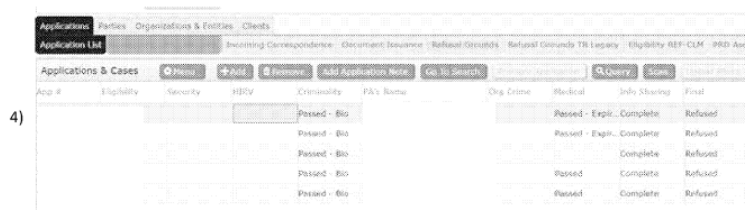
January 31, 2023 7:50 AM

Create a temporary group.

- 1) From the group, CTRL A to select all, then CTRL+ALT+8
- 2) Select Field = Final, Value = Refused, then OK – and wait for GCMS to refuse all apps. This can take several minutes depending on the size of your group



- 3) Select Refusal Grounds



On the right hand side of your screen, enter refusal grounds and select letter as you would for individual refusals

Figure 9. Screenshots of the Chinook Modules (User Interface) and its Bulk Refusal Function. Tao, 2022 and Murrens, 2023.

The images above illustrate the bulk refusal function and the automatic refusal function which generates the refusal letter for the applicant prior to human oversight. These

functions automate the rationale for refusal and allow users to select the refusal grounds for applicants in bulk, which fundamentally shifts the way files are processed. The most troubling factor is that it relies on the generation of a decision prior to the justification for said decision, challenging the foundation of ‘neutrality’ upon which Chinook has supposedly been designed and deployed (Tao, 2022). The ability to select the grounds for refusal from a drop-down menu foregrounds Chinook as a sorting mechanism creating further distance between immigration officials and applicants. Functions of bulk refusal inherently rely on the presence of pre-determined refusal criteria and without procedural review, can simply collate data points to meet those criteria. There is no neutrality to Chinook’s design or command as it relies on geographic and nationality data for its functions and generation of data points. Given that migration management is inherently tied to politicized geographies of allyships and ‘enemies’, the goals of neutralizing the functions of such technologies are foundationally reliant on technoliberal propagations of modernized borders and technologies.

Canadian immigration lawyers have been vocal about Chinook, questioning how its deployment impacts procedural fairness for applicants, especially in the context of Canada’s historically exclusionary immigration practices. Here I examine Wei William Tao’s *Brief to the Standing Committee on Citizenship and Immigration, regarding their report titled Differential Treatment In Recruitment And Acceptance Rates Of Foreign Students In Quebec And In The Rest Of Canada*, specifically referencing his oral submission to the House of Commons ([Tao, House of Commons, 2022](#)). Within the brief, Tao (2022) highlights the critical juncture between Canada’s history of “racism and discrimination, largely emanating around the exclusion of immigrants from the Global

current two – tiered system and embedded refusal rates”, disproportionately impacting racialized applicants from the Global South ([Tao, House of Commons, 2022](#), 8).

Alongside the active discrimination present in sieving mechanisms is the issue of procedural transparency and fairness. Here, both the “cost and complexities of litigation are out of reach for most in the global South”, resulting in 90% of digitally mediated refusals going unchallenged ([Tao, House of Commons, 2022](#), 7). Despite the controversy surrounding the Chinook program, there were no (publicly recorded) attempts to audit its use and outcomes nor impact assessment to enhance transparency measures. Interviewees from the field of immigration cited similar concerns, going a step further to question how systems like Chinook or AI would streamline a complex case:

I don't know if some of the algorithm right now says if you're applying for a study permit, you're eventually going to be streamed, but if you're over 30 [because we think of students as only under 30] If you're over 30 you are streamed to a more complex assessment because we don't believe that you're likely going to be automatically approved so now the 32 year old student needs to know if they're in a different batch, the representatives need to know they're in a different batch, and they may want to challenge that legally but without external audits... these challenges take 7-8-10 years and hundreds of thousands of dollars that most individuals are not going to be able to muster up and yes you get all of the increased intricacies of class action [law suits]. (**Maximus - Immigration Law**)

The cost of litigation and appeal were noted again by a separate interviewee from the immigration field:

Many immigrants [especially refugees and asylum seekers] can't afford counsel, and rely on community services, pro bono clinics, and many try to do these applications themselves. The gap just seems to widen. (**Swati - Immigration Field**)

While the rationale for deploying Chinook centers on its ability to simplify case processing, reduce backlogs, and reduce caseloads for immigration officers, this push for efficiency also seems to feed into discriminatory loops. In an internal report from the

IRCC (on Anti-Racism Employee Focus Groups Final Report, 2021) employees reported that,

.... established practices meant to reflect policies have taken on discriminatory undertones for the sake of expediency or performance. These include discriminatory rules for processing immigration applications from some countries or regions that are different than for others (e.g., additional financial document requirements for applications from Nigeria). (Ghaffar – Siddiqui via [House of Commons, Committee 441, 2022](#))

As such, it is unclear how technological and digital transformation initiatives seek to overcome, either by way of oversight or audits, embedded racism and bias within the social and policy systems of immigration. Tao cites the same concerns with the IRCC's intentions to apply AI programs that are similar to that used for processing "Tier 1" applicants applying for temporary resident visas (2022). The application of such programs across other areas of immigration raises concerns that algorithmic vetting and replacing human officers with AI could inevitably codify "the data of discrimination into black box decision making ([Tao, House of Commons, 2022](#), 8)". Another important feature of programs like Chinook is the convergence of public and private spheres through proprietary and market-oriented AI. For Edwards et.al., Chinook marks the "cybernetisation of immigration" where the "speeding up of immigration files" obscures and diverts attention away from the "qualitative raison d'être (2024)". The authors define the cybernetisation of state governance as "cybernetic processes which disrupts the classical statistical modalities of modern governmentality", where algorithmic governance promises to process new forms of data and information, matching it with the old, and presenting it as actionable data (Edwards et., al, 2024). In 2021, the IRCC subcontracted Accenture to redesign Chinook and its platform "invoking the grant digital transformation" of the Canadian immigration sector (Edwards et., al, 2024). Accenture

was paid in the amount of \$1,826,981.49 CAD to design Chinook's replacement, illustrating the powerful exchanges of data and capital between private and public sectors in Canada (Edwards et., al, 2024). The IRCC made public its private sector collaborations on its website as quoted below:

To remain competitive in the global marketplace and support the Government of Canada's efforts toward digital first, user centred programs, the Department is undergoing a Digital Transformation. IRCC is leveraging a multitude of third-party firms to support its transformation and COVID response. These firms include McKinsey & Company, Deloitte, Accenture, and Gartner. (IRCC website quote via Edwards et., al, 2024)

Such partnerships go beyond simply provisioning technologies and training on how to operate them; they mark a departure from the separation between public and private spheres and facilities. Edwards et.al. highlights the distinction between the two, by using a public road as an analogy, stating when the government contracts a company to build a road, upon completion that road is owned by the state and by the public (2024). However, this is not the case with AI, which due to its technological nature remains beholden to upgrades, debugging, and trademarking (Edwards et.al., 2024). Subcontracting AI remains interlaced with its private sector provisioner at the most basic level. Newer versions render older applications obsolete or useless, ensuring that the government cannot be independent from the private sector and its actors. The convergence of private and public spheres in the contemporary AI era and digitization of government apparatus is best described as, "The multiplication of software, platforms, and data – collecting smart infrastructure at work in the field of governance consequently implies the multiplication of embedded private goals *inside* the state" (Edwards et., al, 2024).

This form and diction of private tech sector goals impregnating the public sector and state factions is concerning given that the public sector, by definition, is not generally concerned with the profit margins of its technology contractors. However, the digitization of the state and governance mediums requires a convergence with the private sector to produce AI governance models and applications. In this way, the success of privately produced AI is also of importance to the state and its functions given that one now informs the digitization and technological reach of the other. The urgency to remain competitive, to innovate, to be efficient, and other logics of technosolutionism (as coined by Madianou, 2019) depict the restructuring of governmental power and those who can enact it. An interviewee from the AI field also emphasized the need to remain market ready to ensure that Canada does not fall behind in digital transformation efforts, stating:

We absolutely cannot fall behind other countries, if you care at all about politics, you should know that our backwardness in adopting AI has real consequences for how we do trade, business, and how we share information. We cannot just sit back and watch others do AI better than us, we need to be the one's experimenting first and others need to learn from us if we are going to have some say in the matters of AI. **(Chris - Tech Field)**

Chris's response exemplifies how the imperative of market readiness is taking hold of governments and policy officials alike. Most importantly, despite the interviewee's market focused input, he highlighted an important aspect of AI and the digitization of governance apparatus, that these initiatives must not be understood as outside politics and power, but through them, as they dictate who gets to formulate the rules and regulations regarding AI and who becomes subject to them. The interviewee's testimony shows how technological and innovation programs are not divorced from the rules and formations of global racial capitalism. In December of 2022, the IRCC automated the processing of Privately Sponsored Refugee (PSR) applications. The

purpose of automating these applications was to optimize administrative steps which do not require human intervention. In January of 2023, Global Affairs Canada (GAC) conducted a review of the IRCC's use of automation to assist in the processing of PSR applications (2023). The GAC was provided with "a demonstration, as well as documentation of the models, and copies of Gender Based Analysis + (GBA+) and the Algorithmic Impact Assessment (AIA)" to conduct its review (2023).

The resulting report stipulates that the deployment is sound and well considered and has been conducted with "extensive consultation with subject matter experts to develop the business rules...", attention was paid to "legal risks" and a "GBA + analysis was undertaken to ensure that equity seeking groups were not disproportionately disadvantaged by the automation process (2023)". However, contrasting the report's overall positive reading of the IRCC's automation of PSR applications, was an interviewee statement on generalized notions of equality and automation in immigration where they state,

I don't think the conversation should be about if AI is going to sort people equally, it won't, when passports are not equal, why would AI be equal? How does that even make sense for us to ask? People and their [citizenship] status make them unequal from the start. (**Sophie - Immigration Field**)

Sophie's emphasis on nationality and by extension the passports power, disrupts the ongoing conversations about AI's ability to respect or sort in accordance with equity-based principles and Gender Based Analysis (GBA+). In fact, it reaffirms much of Tao's (2022) witness statement which heavily drew on geopolitical discrimination embedded within immigration processing itself. Sophie went one step further to challenge the very foundation of immigration processes, which limits the mobilities of members from the

global South disproportionately, highlighting the role of citizenship status, and its enforcement through migration management, in the process of statecraft.

The GAC's report highlights the marketization of governance apparatus, where the concerns were addressed in the language of business efficiency, applicability, and legal risks, much like if the public sector of immigration was a private business or corporation adopting AI. The audit remains out of the public's reach, as the Algorithmic Impact Assessment (AIA) provided to the GAC is not publicly available (at the time of writing), nor are public consultations with users considered. Most importantly, much like Chinook, the use of automated or technologically mediated decision making is reported only *after* it has been deployed, rather than prior notice of deployment plans. Both programs show that immigrants (refugees and visa applicants alike) become the first communities to be engaged by state forms of AI. This engagement is not neutral or random. Rather, it follows a long tradition both in research and practice where racialized subjects are disproportionately treated as subjects of research rather than the formulators of knowledge, often surveilled without notice.

This chapter demonstrates that Canada's use of AI in its immigration processing is not simply a means to address administrative backlog nor is it a neutral next step in the digital transformation of immigration services. Instead, Canada's use of AI in immigration is a continuation of highly racialized and gendered mode of statecraft. The intersectional analytic reveals how national programs for techno-scientific innovation and Canada's immigration policy come together to shape both the forms of inclusion and who is granted membership based on the fluid and everchanging goals of statecraft. Here,

racial exclusion that was once enforced through Canadian Orders in Council are now reproduced through technological sieving tools such as Chinook. In analysing Chinook and the PSR automation program, this chapter shows how AI's adoption does not transcend human biases, nor does it attend to the discretionary nature of humanitarian applications. Instead, it simply reproduces the inequalities of the terrains upon which it was conceived and operationalized. In prioritizing efficiency and speed, vulnerable communities, refugees, and (im)migrants become both the subjects of disproportionate engagement and serve as bodies for the testing of new and emerging technologies. In both instances, they bear the consequences of AI's integration into immigration processes. This chapter then theorizes that the use of AI in Canadian immigration systems should be reconceptualized as a mode of statecraft, used to consolidate Canada's sovereign power on the global scale, whilst sustaining Canada's image as the country of choice for immigrating and refugee seeking communities.

CHAPTER 4: THE STATE AND (A)I

For Canada, leadership in science and technology (at the federal level) has been consistent with postwar anticipatory anxieties of shifts in international orders. These anxieties now take the form of leadership in the field of AI, influencing states to assert their power through breakthroughs in the field of AI and through the integration of digital modes of enacting sovereignty. This chapter seeks to present the following: 1) The scholarly and policy debates on establishing Canadian technological sovereignty and an overview of policy documents such as the Canadian Senate report on A Science Policy for Canada (1970); 2) An analysis of the Vector Institute's report on Artificial Intelligence Talent in Canada to illustrate the convergence between Canadian immigration programs and national innovation imperatives and how these form and inform statecraft; and 3) An analysis of the Pan Canadian AI Strategy and the Department of Defence and Canadian Armed Forces AI Strategy, providing an overview of Canada's national strategies and its related initiatives, illustrating the emergence of techno-enmities, and the role of predictive governance in enhancing AI as the new face and mode of statecraft.

TECHNOLOGY AND STATE MAKING

The historical relationship between technological innovation and the exercise of sovereignty through bordering and territorialization requires a nuanced analysis to illustrate the continuities that inform contemporary race to AI and the importance of technological sovereignty. Wriston (1988) illustrated the importance of techno-scientific achievements to the course of global politics, stating "scientific achievements are altering the shape of national and international events in fundamental ways (64)." Wriston's

analysis of technological sovereignty reflects the frustrations of the postwar era, where despite the highly political nature of the development and deployment of the atomic bomb, policymakers saw themselves as outside the folds of science and technological ventures. The consequences and benefits of the technological revolution were not seen as immediately politically relevant (Wriston,1988). Regarding the convergence of computing, telecommunications, and the information revolution of the late 1980's, journalist Michael O'Neil hypothesized that the information revolution would change "our global economy, transforming national, political, and business institutions and altering national foreign policy objectives and the methods of achieving them (Wriston,1988, 65)". In noting the ways new techno-scientific innovations (which forged the information revolution) would come to transform international relations and politics, Wriston takes this a step further and argues that such transformations challenge "the very nature and definition of national sovereignty (Wriston,1988,66)". Sovereignty and its exercise and consolidation through technological breakthroughs, especially how it changes both the objectives of foreign policy as well as the methods used to achieve them describes the intimate entanglements between private sector technological advancements and the (public) statecraft.

Most important to this dissertation's intervention is Wriston's conception of knowledge and power in relationship to techno-scientific advancements and the emergence of technological sovereignty. The waves of new and emerging technology constitute changes to existing power structures, and they do so by making available new information and forms of knowledge. For Wriston, "knowledge has always conferred power on those who have it and know how to use it", furnishing the impetus for national

governments to align and acquaint themselves with the most current trends in technological and scientific innovations, shedding light on the contemporary formation of nationalized strategies to hone and deploy AI within Canada and globally (Wriston,1988,65). Citing a Dutch jurist, Hugo Grotius, Wriston defines sovereignty as “power whose acts are not subject to the control of another”, a broad conception which covers the “many different facets of the exercise of power (Wriston. 1988,66)”. This framing of sovereignty, the conception of new technologies as channels of new knowledge, knowledge itself constituting power, and its convergence between governance objectives and techno-scientific innovations, highlights the perennial relationship between sovereignty and technological innovations. Therefore, technological innovations play a key role in how Canada seeks to present itself internationally and how its citizens view themselves in comparison to its national *others*

THE CANADIAN INNOVATION PROBLEM

The shape and pace of Canadian science and technological innovation have consistently been of concern to the federal government since the early 19th century. These are furnished by examples of experimental research carried out by the federal government on forestry practices and farming stations, as well as the numerous federal inquiries on the topics of science and technology performed by government commissions (Globerman, 1978). Canada’s interest in promoting industrial, scientific, and technological innovation is marked by its long history of federal investments, national research councils, and special committees, many of whose “concern about Canada’s poor performance as an industrial innovator” turned into “a major public policy issue in the 1970’s (Globerman, 1978)”. For Globerman (1978), the one policy issue which united both policy makers and

federal observers was that Canada was at a “competitive disadvantage in the production and sale of most types of ‘technology intensive’ goods vis – a - vis other developed countries (35)”. This concern is at the core of the Science Council of Canada’s report in 1977, which makes the case for “improving technological capabilities of Canadian industries” by building a “strategy of technological sovereignty (Globberman, 1978, 35).” The Canadian science policy documents from the 1970’s were selected for analysis as the debates surrounding Canadian reliance on the United States came to a head, thus mimicking the contemporary imperatives for Canada to become digitally sovereign and technologically independent. Examining an earlier report from the Science Council of Canada (1971) shows that the need for a national science policy and urgency to establish independence in sectors of industrial and technological innovation in Canada can be traced back to the late 1800’s (**Figure 11**).

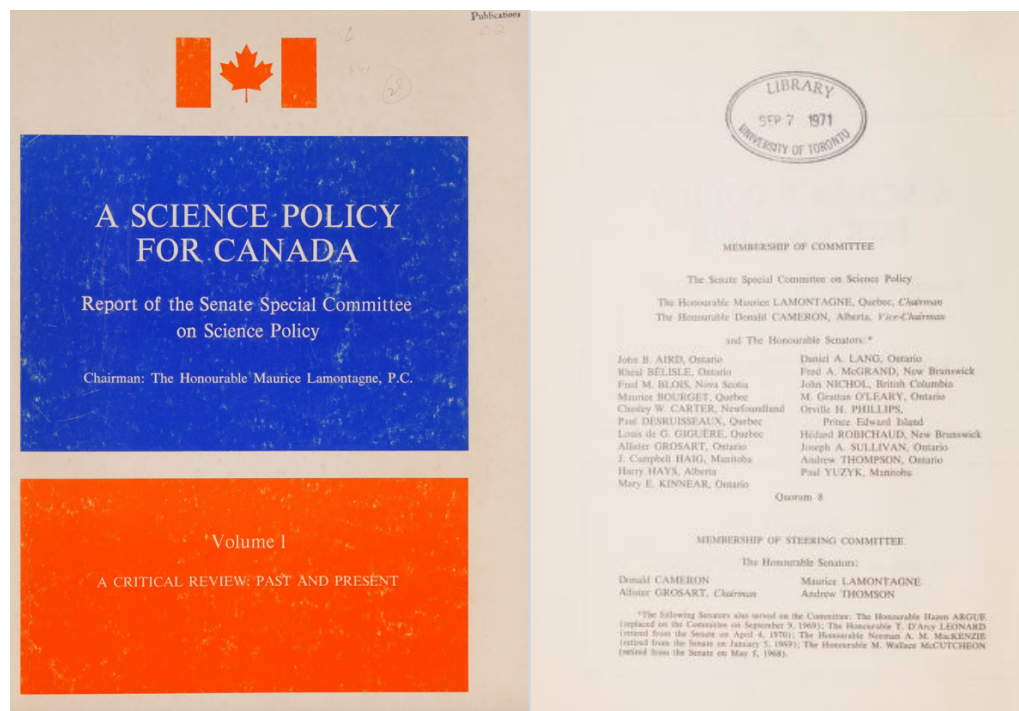


Figure 11. Cover Photo of the Critical Review: Past and Present – Volume 1 – Science Policy for Canada – Report of the Senate Special Committee on Science Policy. 1970.

In its review of the history of science and technology in Canada, the report illustrates how Canada “lagged behind in the progress of Europe and the U.S.A” in relation to the development of industrial technologies (1970, 20-21). Instead, Canada focused on natural resource extraction, highlighting that the “oldest scientific organization of the Government of Canada is the Geological Survey of Canada (1841)” which would later serve as the foundation of the Canadian mining industry (1970, 20 - 21). The anxiety to create a technologically advanced Canadian political economy and make Canada a leader in the industrial revolution, was also expressed in relation to public universities. In 1919, several academics across Canada were engaged in surveys and questionnaires on how to create a technologically advanced state (at par with its American neighbor) (1970). The conclusion of this review is shared as follows (**Figure 12**):

At the conclusion of its review, the council presented its recommendations to the Privy Council sub-committee on scientific and industrial research. At the centre of this proposal was a two – part plan:

The government should build a research laboratory complex, primarily to develop the new technology Canada needed if it was to join in the post – war progress of the more advanced nations. (29)

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Industry should be encouraged to expand its research facilities and to join forces in setting up “industrial guilds” to consider the common research needs of a particular industry sector. It was proposed that instead of the government helping to fund laboratories for these guilds, the staff of the guilds would conduct research in the proposed new government laboratories under the supervision of the laboratory staff.

Figure 12. The Critical Review: Past and Present - VOLUME 1 - Science Policy for Canada - Report of the Senate Special Committee on Science Policy.1970, 29.

The role of public universities in producing knowledge and to innovate in the fields of science and technology in ways that are commensurate with national needs for innovative leadership is consistently discussed in the report (1970). Citing Dr. Robert Fulford Ruttan, Canadian Chemist and Professor from McGill University, who argued that Canada was the only developed country of its size (in population) that “has no adequate university or Government research facilities”, the report illustrated the entanglements between academic innovation and national leadership, showing how intimately coalesced techno-scientific achievements are with national politics and sovereignty (1970,30). Other academics were concerned by the national ability to train and produce thinkers. The number of Canadian universities granting doctoral degrees between the late 1800’s up until the first World War was criticized, with Dr. Macallum (Professor of Biochemistry at Western University) highlighting that at a time when the United States had produced 350 – 500 Ph.D.’s in pure sciences, Canadian universities had only produced 11, from the two universities that could grant doctoral degrees at the time (University of Toronto and McGill) (1970, 30 – 31). The report highlights many facets which constitute the failure of Canadian science policy between 1916 and 1919, delving into Canada’s legacy in the aftermath of World War II without a national science policy to guide its path out of the shadows of the United States and Europe (1970, 35 – 60). These sentiments are furnished specifically in the section on Canadian Self – Sufficiency (**Figure 13**).

THE CRUCIAL FIFTIES: NRC'S MODEL AND
CANADIAN SELF-SUFFICIENCY

It is necessary to keep in mind the official doctrine and strategy for science and technology just described to understand the crucial events of the '50s. It is also important to note that the main Canadian spokesmen of the Republic of Science had acquired a great deal of confidence during the war and had come to the conclusion that Canada should try to be self-sufficient as the new scientific revolution emerged.

These were the main elements of the atmosphere prevailing in Canada when the government decided to promote major innovation programs involving high technology. There was no highly developed industrial infra-

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structure to support these programs, but it was claimed that "spin-off" from the programs would help solve that problem. These aspirations were fed by a desire to consolidate our sense of equality with Britain and the United States and by the myth of invincible research based, as Donald Schon has pointed out, on wartime experience with nuclear weapons:

The Manhattan Project was the great model of the research enterprise. What the Manhattan Project said was that if you take a great doctor and surround him with scientists in a laboratory, and if you have a clear-cut objective and pour essentially unlimited amounts of money into that system, you can do anything.⁹⁸

Figure 13. *The Critical Review: Past and Present - VOLUME 1 - Science Policy for Canada - Report of the Senate Special Committee on Science Policy, 1970, 71 – 72.*

The importance of the 1971 report on science policy in Canada, is vested in its continuous emphasis of Canadian *self-sufficiency, leadership*, and establishing *enterprise* in technological, scientific, and research like that of the famed Manhattan Project. The Canadian state's desire to 'consolidate' a sense of 'equality' with other countries they deem advanced in terms of research and development (R&D) and technological innovation, is then an ongoing project focusing on how the Canadian state seeks to establish itself and how statecraft occurs in tandem with domestic science and technological innovation. This is best furnished by the report's adoption of UNESCO's definition of science policy as the "... sum of legislative and executive measures taken to

increase, organize, and use national scientific and technological potential, with the object of achieving the country's overall development needs and enhancing its position in the world.” (2)

Consequently, Canada did not arbitrarily arrive at the need to establish itself in the field of AI in the twenty first century. Rather, the national Canadian AI Strategy is an extension of a much older program of statecraft, where states converging with their technological abilities and the establishment of technological sovereignty is viewed as an extension of state power on the international stage. The position Canada has taken to establish itself internationally through techno – scientific innovation, is reiterated in the report by the Science Council of Canada in 1977, where Globerman illustrates its specific calls for establishing technological sovereignty:

For Canada, a technological sovereignty consistent with international interdependence must replace technological imbalance. We must develop an appropriate amount of original technology, ‘high’ as well as ‘low’ (i.e., complex and simple), and apply it vigorously. We need to stimulate innovation in secondary manufacturing industry. We must add shrewd international collaboration, careful licensing arrangements and recognize also that public purchasing policies could be a powerful tool for promoting domestic technological development. (35)

For Globerman, technological sovereignty must respond to the technological imbalance (between Canada and its allies) and encourage domestic innovation ways that allow for interdependence rather than dependence. This form of technological sovereignty envisions a manufacturing, technological, and market-based independence which can only be generated by original domestic innovations, a prime example of the current national turn to purchasing and supporting “made in Canada” goods (Maimann, 2025).

Regarding Canadian reliance on its allies and specifically the United States, Smardon (2014) provides an overview of political and economic undertakings by the Canadian state between the years of 1960 – 2010 and unravels longstanding challenges to Canada's autonomous scientific and technological innovation. For Smardon, Canada's reliance on the U.S for technological imports is the result of its integration into the North American industrial economy, which in turn is responsible for the lack of an autonomous scientific and technological industry (an enduring issue in Canada at present) (Smardon, 2014). Drawing on Panitch and Gindin's conceptualization of Canada as a "rich dependency", which served as an example of the "informal imperialism" of the U.S, Smardon contends that the establishment of "branch plants" were a "crucial aspect of dependent technological development" in Canada (Smardon, 2014, 55-56). The term "branch plant" is understood as the structural condition of the Canadian economy which privileged foreign multinational corporations (namely in the United States), in establishing their subsidiaries and operations within Canadian markets whilst their head offices or companies remained abroad (Smardon, 2014). This harmed Canadian domestic innovation and markets as it concentrated the profits to firms abroad, thus limiting reinvestment within the Canadian domestic markets and stunted its growth and innovation (Smardon, 2014).

Central to Smardon's intervention is that Canadian economic development and industrialization is distinct and unique in comparison to other advanced economies, given its "reliance on the export of staples and on the import of capital and technologies from the United States (Smardon, 2014, 52)". In particular, he emphasized the role of the Canadian state in supporting and encouraging a commercially oriented national policy

which sought to increase the “benefits from being a staple exporting economy” rather than support the evolution of the Canadian economy from a commercial to industrial economy (Smardon, 2014, 54). This position was further entrenched within federal processes and programs through what Smardon termed the “Glassco Framework”, referring to the 1960 - 1963 Glassco Commission reports on governmental organization which prioritized private firms in relation to research and development whilst neglecting the growing nature of Canadian dependency within sectors of technological development (Smardon, 2014, 16 – 17). Informed by the Glassco Commission reports, the Canadian federal government tasked the private sector with the responsibility of generating domestic technological capacities and incentivized this through:

...increasing various subsidies to private capital, shifting a greater proportion of federal science expenditures to the private sector, or creating greater instances where federal scientific activities were coordinated with private sector R & D – while leaving un – touched the specific context of dependent technological development that governed how private capital organized R & D and original innovation in the Canadian economy. (Smardon, 2014, 16 – 17)

Despite the vast number of federal initiatives that sought to increase the marketization of federal research such as firm specific subsidies, expansive tax incentives, and partnerships between private and federal scientific institutions, the benefits of such programs were unable to overcome the “fundamental forces structuring the commitment of private capital to R&D and original innovation in the Canadian economy (Smardon, 2014, 17).” Low industrial and technological development undergirding the Canadian political economy was also a point of contention under Pierre Elliot Trudeau’s government (1968 – 1979), highlighted by Joel Bell (a key advisor and participant in the

various initiatives to bolster Canadian domestic technological capabilities) when he stated,

Much of our manufacturing had been based on foreign – developed products, frequently introduced into Canada through foreign owned subsidiaries...It became a priority for the new Trudeau government to examine the ingredients of industrial and particularly manufacturing success: the development of applied technology (including manufacturing process technology for cost competitiveness) and product innovation; capital pools and intermediation to support the needed investment; market access to permit Canadian production to reach minimum economies of production scale and support research and development ...rationalization of production in Canada and between Canada and other markets, to permit competitiveness and to ensure that a fair share of the activities and benefits of industrial activity went to Canadians. (Joel Bell via Smardon, 2014, 192)

Bell's summary of the priorities under the Pierre Elliot Trudeau government highlights the ongoing nature of Canada's struggle to establish a national science policy that could revive an economy that was foundationally reliant on American manufacturing power. More importantly, it demonstrates the lingering effects of market-oriented policies (i.e., tax incentives) that led to foreign owned subsidiaries establishing themselves in Canada. Contemporary policy examples include the Scientific Research and Experimental Development (SR&ED) tax credit program which also privilege pre-existing and globally facing firms instead of smaller domestic firms. Owing in part to such programs, Canada has failed to become a key leader within global industrial value chains. By the early 1970's, the Canadian federal government and key politicians began advocating for policies that would confront these increasing levels of foreign economic control and establish an economy less technologically dependent on foreign partners (Smardon, 2014, 193)". This attempt to assert domestic development through R&D and technological innovation were furnished by two key initiatives: 1) the creation of the "benefit to Canada clause of the Industrial Research and Development Act (IRDIA)

program”, which received increased funding through the Program for the Advancement of Industrial Technology (PAIT), and 2) the establishment of the Senate Special Committee on Science policy, which produced two volumes that explicitly called for the “development of greater technological capabilities by domestic capital” as analyzed in the section above (Smardon, 2014, 193). Additionally, the committee called for the “Canadianization” of existing foreign subsidiaries, bringing to the fore the need for structural change to technological industry formation in Canada (Smardon, 2014, 193).

The 1970s marked a crucial period in Canadian political history for debates centering on an autonomous Canadian technological and industrial economy. For Smardon, the development of the Waffle movement within the New Democratic Party (NDP) brought about greater scrutiny in relation to American informal imperialism and foreign ownership. Smardon states:

This greater questioning and scrutiny of the role of American capital happened at a time when the Canadian manufacturing sector was facing major difficulties as a result of declining levels of exports and the unilateral changes made by the United States in the early 1970’s in an effort to improve the American balance of payments by lowering imports and expanding exports. The coming together of these historical conditions led to a situation in which the Canadian federal state began to consider policies that confronted dependent technological development in an unprecedented way. (Smardon, 2014, 193 – 194)

The co-founder of the Waffle movement within the NDP, James Laxer, foresaw many of the enduring issues in relation to Canadian technological dependency and stunted manufacturing industry and capacity. Laxer, who wrote extensively on the challenges posed to the Canadian political economy and the need for a new Canadian national economic strategy, highlighted the “high technology challenge” facing Canada, not unlike the AI capacity challenge Canada faces today (Laxer, 1984, 39). Laxer notion of the ‘high technology challenge’, referred to the “newest labour-saving devices”,

responsible for the “...most important qualitative shift in the nature of industrial organization since the rise of the automotive, electrical products and chemical industries in the 1920’s (Laxer, 1984, 39)”. Though both Smardon (2014) and Laxer (1987) discuss the consequence of branch plant economy in Canada, Laxer’s scholarship placed particular emphasis on foreign ownership as a means of Canadian de-industrialization, stating that de-industrialization is perhaps the most important consequence of the Canadian integration into the American economic empire, which he referred to as “continentalism” (Laxer, 1973, 9 ; Laxer, 1974; Laxer, 1981). Commenting on the major turn in national sentiment towards the United States, Laxer posited,

A powerful new nationalist mood is evident among Canadians. In the space of a few years Canadians have rejected the view that this country benefits from its ties with the United States. A substantial majority of Canadians want changes in the country’s economic structure...Nationalist sentiment has arisen among the Canadian people as a result of the country’s ill balanced economic structure. Canada’s role as a resource base for the United States has prevented the full development of manufacturing in Canada. (Laxer, 1974, 129)

For Laxer, the “extent of foreign ownership” and the fact that the Canadian economy served as the “proving grounds” for the expansion and growth of American corporations created foundational challenges to any transformative efforts on part of the Canadian industrial and technological industries (Laxer, 1987, 115-116). Technological ‘frontierism’ continues to inform Canadian national development in the very same fashion as was hotly debated in the 1970’s. The 1970’s marked the pivotal recognition that the Canadian economic integration into its Southern ally now came to produce technological dependency, one that Canada could not simply invest away, nor innovate itself out of. This aspect of Canadian technological dependency has had an enduring legacy informing current challenges of capacity. Especially important is the critical

assessment of the Canadian economies policy turn post 1970s, which privileged private enterprise and market driven research and development, a position which has had enduring influence as showcased through the lack of capacity to produce the MRNA vaccines and continued reliance on American subsidiaries for its technological imports (especially in terms of surveillance applications of AI, i.e., Palantir and Clearview).

A key example is Canada's reliance on the United States is the manufacturing of the Covid – 19 vaccine (Messenger (mRNA) vaccines), despite being heralded as a “Made-in-Canada breakthrough” and a domestic “scientific triumph” (Blakney and Cullis, 2025). This gap was once again addressed through renewed and urgent funding by the government of Canada through the Canada Biomedical Research Fund and Biosciences Research Infrastructure Fund (CBRF – BRIF) (Blakney and Cullis, 2025). Despite funding initiatives, manufacturing capacity remained in flux until 2025. While former Prime Minister Trudeau announced an agreement with Novavax that would result in the manufacture of Covid – 19 vaccines in Montreal, in 2021, vaccines still had not been produced by late 2024 (Serebrin,2024). However, by September, 2025 the Moderna facility in Laval, Quebec began producing the “made in Canada” mRNA COVID-19 vaccines marking a welcome shift in Canadian domestic manufacturing ([Government of Canada – Innovation, 2025](#)).

The prioritization of building and enhancing Canadian manufacturing capacity denotes a shift in Canada's innovation goals and landscape, where innovation in AI and the development of a strong Canadian manufacturing front both depict a departure from Canada's branch plant economy (Smardon, 2016 ; Laxer, 1987). Continuing its legacy as a state reliant on immigration as a key source of skilled labour, Canada has turned once

again to the United States to fill a gap in technological talent, this time through a Tech Talent Strategy which targets “highly skilled immigrants in the United States who hold an H-1B non-immigrant visa” (Hooper, Batalova, Gelatt, 2023). This program, while unusual in its targeting the visa holders of another country, fits the broader trend of Canada competing to “attract and retain talent with an eye to what their “competitors” are doing (Hooper, Batalova, Gelatt, 2023)”.

The historical struggle to establish an autonomous industrial economy has come to inform Canada’s aggressive position in establishing leadership in the emerging AI economy. Faced with the likelihood of reliance on foreign owned AI tools and applications, the federal government has yet again advanced a robust federal funding program to establish Canada as an AI leader. In this context, establishing technological sovereignty is better understood as a means of raising homegrown technological abilities which then become a means to enact power on the international stage. The review of Canada’s historical struggle to establish a robust national science policy, transform its manufacturing and technological dependence, and the close linkages between innovation and national standing, underpins Canada’s current imperative to establish itself in the field of AI and techno-scientific advancement. Here the emphasis on formulating an autonomous scientific and technological sector, the language of leadership, and protectionism from other countries gaining sovereignty over data and digital aspects of the economy, foregrounds the quiet formations of enmity vested in competition among global actors for supremacy in technological innovation and capabilities.

CANADA'S AI STRATEGY & THE CASE FOR TECHNO ENMITY

Prior to World War 1, the imperative to innovate and establish leadership in the sciences was primarily motivated by membership within the circle of advanced states that provisioned technologies to lesser advanced states. However, policy reports and funding imperatives cite technological advancements as necessary for the national show of strength. The rationales for the nurturing of R&D have since shifted to become central to national security imperatives (Aaronson, 2024). Canada and other countries alike are moving away from modes of technological interdependence and have begun formulating national programs for strategic autonomy in the field of AI (Aaronson, 2024, 5). The following section reviews Canada's national AI strategy and The Department of National Defense and Canadian Armed Forces Artificial Intelligence Strategy. This review is supplemented by an analysis of publicly available documentation, interviews, and announcements on AI leadership from former Prime Minister of Canada, Justin Trudeau's office. Informed by Mbembe's "The Society of Enmity" (2019), the analysis of two key national Canadian AI strategies illustrated the emergence of technological enmities in relation to national AI campaigns whose designs are foundationally reliant on existing international politics of enmity.

Concerted investment in Canada's AI ecosystem began in 2016, with the federal government's committing \$16 billion CAD in support of scientific discovery and development of research talent. Of this, \$2 billion was specifically allocated to build and support Canadian AI infrastructure ([Securing Canada's AI Advantage](#), 2024). In 2017, Canada established the [Pan – Canadian Artificial Intelligence Strategy](#), and became the first country to create a national AI strategy. The strategy has three pillars: 1)

commercialization; 2) standards, and 3) talent and research. Under these three pillars, the key themes of self – sufficiency, leadership, and enterprise are revisited and emphasized, mirroring the policy priorities of the 1970s. Under the first pillar of commercialization, the strategy established national AI institutes, namely Amii in Edmonton, the Vector Institute in Toronto, and Mila in Montreal. These institutes play a key role in bridging gaps between research and application, enabling AI research to be distilled into commercial applications. Under this pillar, the strategy provisioned \$125 million to “Canada’s Global Innovation Clusters” which are aimed at supporting and promoting the “the adoption of made-in-Canada artificial intelligence technologies by businesses in key industries, and by public and not-for-profit entities (2024)”. The emphasis on ‘Canadian-made’ illustrates the key themes of self-sufficiency and enterprise, where home grown innovation is a means to protect and maintain sovereignty over both the technology and its data flows. The emphasis on ensuring AI research is transferrable or translates into commercial applications, speaks to the desire to establish a national innovation enterprise. The second pillar, standards, is primarily concerned with the development and advancement of standards in relation to the adoptions of AI. This pillar received \$8.6 million CAD in support and primarily functions through the Standards Council of Canada.

The third pillar, talent and research, seeks to attract, develop, and retain academic research talent through training opportunities offered at Amii in Edmonton, the Vector Institute in Toronto, and Mila in Montreal. CIFAR (The Canadian Institute for Advanced Research) is meant to lead many of these initiatives by providing “advanced research, training, and knowledge mobilization programs (2024)”. The federal government has

budgeted \$208 million towards the initiatives under this pillar over ten years (2021 – 2031) ([Pan – Canadian Artificial Intelligence Strategy](#)). It must be noted that the talent and research pillar, meant to attract and retain talent in AI, is overtly connected to the Canadian of immigration sector, where national investments in AI skills developments and need to foster its growth mimics Canada’s longstanding history of importing its labour and skill-based needs. In a recent impact paper by the Vector Institute titled “AI Talent in Canada”, the authors emphasize immigration strategies and programs as a major avenue for attracting and maintaining AI talent (**Figure 14**).



Figure 14. *Vector Institute, Artificial Intelligence Talent in Canada, October 2024*

The highlighted passage reads as follows:

Beyond academic partnerships, companies are leveraging Canada’s Global Talent Stream through Immigration, Refugees and Citizenship Canada. This program is designed to help Canadian businesses quickly access highly skilled foreign workers in technology fields. Organizations are also turning to specialty IT recruitment firms and agencies that focus specifically on contracting AI talent, tapping into their expertise and networks to find qualified candidates. (2024)

Within this pillar, the convergence of science and technological advancement with immigration cannot be ignored. This connection demonstrates the fundamental role both programs play in the construction of the Canadian state's image and national development schemas. Other examples of talent attraction through immigration schemas include provincial initiatives to attract AI and tech talent, such as Quebec's Permanent Immigration Pilot Program for talent in AI:

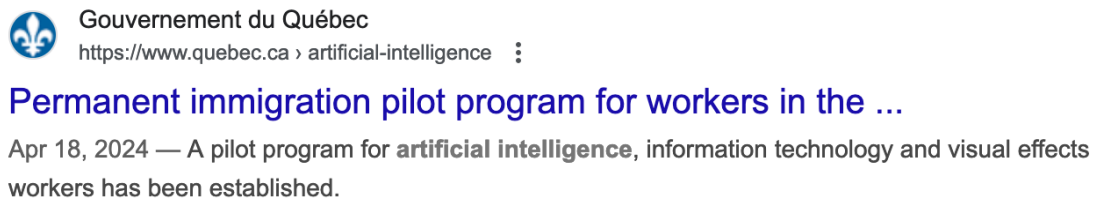


Figure 15. *Screenshot of Provincial AI talent programs*, Source: Google Search.

An additional \$40 million CAD in funding between 2021 and 2027 has been allocated to the Digital Research Alliance of Canada (under pillar 3), which seeks to ensure that the necessary computing capacity required for AI researchers across Canada is readily available and supports the talent and training objectives of the Pan-Canadian AI strategy. The third pillar speaks to the key themes of Canadian self-sufficiency and leadership. In provisioning training and ensuring computing capacity, the strategy seeks to promote leadership within the field to circumvent international dependence whilst also aiming to attract and retain AI talent. The linkages between public universities, research, and national innovation programs are closely linked in Canada's approach to leadership in AI. This is evidenced by AI topics and research becoming key funding targets for the federal research granting agencies. The Canadian Institute of Health (CIHR), the Natural Sciences and Engineering Research Council (NSERC), and the Social Sciences and

Humanities Research Council (SSHRC), awarded a total of \$936.8 million CAD in AI research between 2017 and 2018 ([Securing Canada's AI Advantage](#), 2024). In 2022, Phase 2 of the strategy was announced, injecting another \$443 million CAD into the strategy and across its pillars and partners, with another \$284 million CAD announced in 2023 for the Global Innovation Clusters meant to strengthen and innovate AI applications in supply chain management.

In the former Prime Minister Justin Trudeau's press release titled "Securing Canada's AI Advantage" on April 7th, 2024, the budget and investment announcements emphasized the element of honing leadership, an important aspect of Canada's ongoing AI strategy. In the press release, the word "leader" is used four times; while not significant numerically, the term is productive in its use to signify and signal Canada's sovereignty in relation to nationalized AI strategies. Global leadership in AI, while marked as the vital next step of economic development for the state, is also significant to national and international identity formation. This is evidenced through the convergence and valorization of AI research conducted in public universities. For example, the press release states, "Since the 1990's Canada has been a **leader** in AI and deep learning, made possible by the research and innovations of the "Godfathers of AI", Canadians Yoshua Bengio and Geoffrey Hinton" (2024). The same is present in the opening of the press release, where Prime Minister Trudeau states, "The Pan Canadian Artificial Intelligence Strategy is helping Canada maintain its position as a world **leader** in AI..." (2024).

Both instances demonstrate the importance of leadership as fundamental to the development of Canada's AI national strategy and infrastructure. The quest for leadership is shaped by decades of perceived and real challenges posed to Canadian

sovereignty by nations viewed as more advanced (i.e. the United States and its European allies).

If the Manhattan Project, which has etched itself in the techno – political imaginaries of every state, has inspired the course of development and leadership in AI, then leadership is also vested in mastering new trends in international warfare, militarization, and sovereignty. In 2024, the Department of National Defense and Canadian Armed Forces (DND / CAF) released its Artificial Intelligence Strategy, aimed at making the Canadian Defense team “AI enabled by 2030” (2024). In its foreword the DND / CAF illustrates the new modes of warfare and securitization, stating

Today, we face a world more insecure and dangerous than at any time since the end of the Cold War. We must expect that demands on the Canadian Armed Forces both domestically and internationally will only increase. We must modernize rapidly in order to meet the challenges of tomorrow. The imperative is clear, and the urgency is real --- but we are equal to it, we must move – and move now – to become an AI enabled organization. (2024)

The excerpt from the DND / CAF AI strategy demonstrates the relationship between technological sovereignty and political grounds keeping in the simplest of terms. The state’s ability to adapt, change, and adjust to new developments in AI are coalesced with the ability to maintain and ensure its own sovereignty.

Despite the globalized world market, there are special consequences attached to the reliance on international partners for AI-based technologies and being perceived as technologically dependent in the AI race. Reducing dependence and asserting technological sovereignty are not new goals. As referenced in a report from the Science Council of Canada (1977) via Globerman (1978), the council urged:

In this last quarter of the 20th Century, Canada will need to assert technological sovereignty, that is, to develop and control the technological capability to support national sovereignty, only in this way can we strengthen our technological base

and, in turn, our long term economic well – being and freedom of choice.
(Globerman, 1978, 42)

Special attention must be paid to ‘freedom of choice’, where technological innovations and its convergence with national sovereignty present new channels of performing power through new technological muscle. The DND / CAF strategy mimics these concerns, highlighting five priority areas in their AI strategy as follows: 1) Fielding and Employing AI Capabilities; 2) Change Management; 3) Ethics, Safety and Trust; 4) Talent and Training; and 5) Partnerships (2024). The report furnishes many opportunities for AI to optimize current operations, for instance, the use of Machine Learning (ML) to predict system failures for Navy ships, which uses “data to train autoencoder neural network algorithms to pinpoint system anomalies associated with a failure event (2024,3).” Important to the DND / CFA strategy is not only self-sufficiency but also the need to “keep pace with both international allies and adversaries (2024, 3)”. The strategy outlines the need for the DND/CCFA to have their own AI center which would act as an accelerator of AI techniques and applications to operationalize and scale across defense, with key pillars focusing on robotics, digital, and responsible AI (2024) (**Figure 16**).

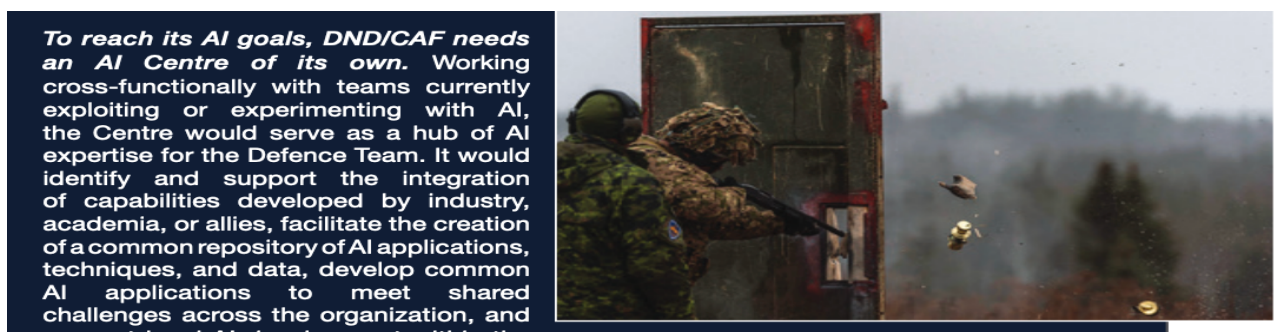


Figure 16. *DND / CAF AI Strategy* (2024,13).

The Canadian AI strategy and the DND/ CAF AI strategy both emphasize the need for independence within the AI field and the need to attract and simultaneously retain AI talent, demonstrating the key role immigration plays in the development and display of Canada's technological abilities. While it is suggested that innovation must be homegrown, it also relies on immigration to attract global talent in these fields. Like the Pan-Canadian AI strategy, the DND / CAF AI strategy makes clear the need for attracting and retaining AI talent, citing that demand for talent and AI skills remains *unmet* with the task for digitizing and enabling an AI enabled DND (2024). It also highlights the need to promote and “enhance connections with academia to encourage skill development in support of defense requirements (2024, 25).” Furthermore, the strategy stresses the need to foster an innovation ecosystem for the purposes of Canadian defense and security (with no details on what the security imperative is) (2024,25). Such is the development of nationalized AI strategies, where the threat is nowhere and everywhere all at once, thence requiring AI and technological enterprise to become both the means of discipline and pre-emptive safety measure (be it economic or defense related). In a report by the Canadian Advisory Council on Artificial Intelligence (AI) (2020- 2021), the importance of “made in Canada” AI is credited to its ability to “communicate inherent AI values and ethics to international customers ([Annual report 2020-21](#))”. In same way, AI applications and capabilities at the state or governance levels signifies to international communities Canada's ability to expand its power and respond to threats that the “other” represents.

ON TECHNO ENMITY

While asymmetric and unequal global terrains are often used to formulate military responses and predict outcomes, AI poses a challenge to this sense of security as it relies on the underdevelopment of states on the receiving end of military responses. For Carlini (2020), AI in warfare now poses a different challenge, one of “equalization on the asymmetric battlefield, if the smaller country / adversary applies it correctly (2020, 23).” It is precisely because of the possibility of a shift in the international orders of power that leadership and ingenuity have become pertinent to state craft and sovereign grounds keeping. Carlini’s notion of the risks associated with the “battlefield of tomorrow” becoming multidimensional as it relates to cyber dimensions and spaces, is important to this dissertation’s theorization of techno-enmities, as it depicts the fluid nature of an unseen and immaterial enemy object, against which visions of state power are crafted (2020,24). Applying Mbembe (2019) to the emergence of national AI strategies, I argue that leadership in AI, and its foundational reliance on advancing one national government over its “others”, constitutes the emergence of a digitally mediated international order where allyships and adversaries will be formed along the lines of techno-enmities.

For Mbembe (2019), the “struggle against an enemy” through the building of “concrete walls and wire fences and other security barriers” has long fueled “contemporary projects of separation” without ever really fulfilling the promise of “keeping away those considered a threat (42-43)”. National struggles and mobilizations “thrive on a vision of the world that is threatening and anxiogenic, one that grants primacy to logics of suspicion, and indeed to all that which is secret, or pertains to conspiracy and the occult (Mbembe,2019, 48).” From this perspective, in an era that is

foundationally “eminently political”, the goal posts and desire for an enemy remain fluid, where the enemy is deemed both “decisive and profoundly obscure (Mbembe,2019,49)”. Applying this theorization of perpetual enmity and the permanent state of insecurity used to fuel technological innovation at national levels, Mbembe states:

The use of new technologies has made it possible to gain access to individual’s private lives. Insidious techniques of mass surveillance, secret and sometimes improper, target people’s thoughts, opinions, movements, and privacy. Aided by the heightened reproduction of the affect of fear, liberal democracies have not stopped manufacturing bogeymen apt to scare themselves... (Mbembe,2019,51)

Similarly commenting on the expansion of “algorithmic reason”, Mbembe illustrates the necessity of fear and political enmity to the mobilization of technological objects as well as fearing the technological object itself in simultaneity (2019,51). When applied to Canadian approaches to AI leadership, with reference the title of the 2024 press release, “Securing Canada’s AI Advantage” posits Canada as “advantage[d]”. In this context, accessing or being of advantage necessitates the state of disadvantage of an unnamed source or other (2024). The language of establishing advantage is not exclusive to Canada’s AI endeavors but is evident in the recent spike in states rushing to embolden their AI nationalisms through national strategies and investments (Aaronson,2024).

In the Canadian context, Lukawiecki (2024) argues that Canada can “either adjust and thrive or face the possibility of lagging behind its allies and rivals” in relation to the integration of AI in armed conflict (2). The literature at hand demonstrates that there is a consistent threat, an enmity taken for granted, in relation to both state building and technological capabilities required to defend its sovereignty. The urgency to integrate AI into military operations is furnished by the pre-emption of threats associated with Canada’s inability to transform its military capabilities, for example:

It is anticipated that both state and non – state adversaries could take advantage of AI capabilities, resulting in increased dangers in both conventional and unconventional conflicts. These opponents may utilize AI for military strategizing, cyber activities, and decision making, which could potentially violate legal, ethical and safety protocols. (Lukawiecki, 2024, 3-4)

Elsewhere, the likelihood of proxy threats is multiplied by AI's availability to non-state actors, and adversaries who seek to “obtain Canadian AI technology and intellectual property”, threatening Canadian national security and sovereignty (Lukawiecki, 2024, 4). Cyber activities and AI's applications which can make material threats through immaterial spaces illustrate what Mbembe (2019) deemed “humanomachinic coupling”, where the emergence of threats via cyberspaces and data flows “led to the genesis of new mythologies of the technical object (55).” The technological object represents both the *power to be had and to be threatened by*, furnishing this dissertation's theorization of the emergence and formations of techno-enmities vital to the mobilization schemas of national AI strategies. This is achieved by the

Exponential acceleration of technological development and industrial innovation, the unremitting digitalization of facts and things, and the relative generalizing of what might be called electronic life and its double or robotically adjusted life. (Mbembe, 2024, 55)

Here the inability to disengage human beings from their data shadows, and both the practice of accumulation and storage of data “by advances in algorithmic computation” makes for a fluid and consistently moving target of techno-enmity (Mbembe, 2024, 55). With reference to the 1999 report by Canada's Council of Science and Technology Advisors, titled: *Building Excellence in Science and Technology (BEST): The Federal Roles in Performing Science and Technology, the performance of Science and Technology* (S&T) has consistently been linked to establishing a distinct Canadian

national identity. In example, the report established that the federal government's role as a performer of S&T is crucial to the formation of a "unique national identity and economic sovereignty in the global marketplace... (1999,10)". The report emphasizes how identity formation and methods of statecraft are mobilized through the construction of a threat on the horizon, either to the state or to individual quality of life:

Science and technology are vital components for the proper functioning of Canada's economic and social systems. S&T is taking on increased importance in all facets of life. Not only can advances in science and technology offer a better quality of life, they can also point out where there are threats to that quality of life. The average Canadian has access to, and demands, much fuller information on which to base life decisions. (19)

To elaborate further on the emergence of techno-enmity driving global AI nationalisms, the literature offers two approaches: one is AI sovereignty, and the other AI nationalism. AI sovereignty pertains to a state's "self-determination" over its AI applications and systems, while a contrasting definition (Chaves, 2024) defines AI sovereignty as involving "national governments strategic development and deployment of AI technologies to protect national sovereignty, security, economic competitiveness and societal well – being (Aaronson,2024,3)". In contrast Aaronson (2024) argues for the use of the term AI nationalisms given its close linkages to the transformation of "both the economy and military by machine learning", causing an "accelerated arms race...between key countries (3)". Despite the intimate linkages between AI nationalisms, militarization and the economy at large, the literatures gravitate towards the ability or inability of states and their international competitors to establish AI sovereignty. In a review of the formations of AI nationalisms in China, France, Europe, the United States and the UAE, Aaronson shows that global actors have moved away from technological interdependence by focusing "less on exporting to the global

economy and more on achieving strategic autonomy”, also described as “strategic sovereignty (2024,6).” The shift in governance objectives of collaboration and interdependence between allies in AI research and development illustrates the emergence of techno-enmity. Given the shifting nature of global innovation partnerships, states are working to find a balance “between nurturing AI innovation and protecting their citizens and their firms from harm”, which restricts the free flow of data, as that too is now considered a sovereign asset (Aaronson, 2024,7). The strategic non-alliance in the development of national AI programs, goals of technological sovereignty, and the language of gaining advantage and self – sufficiency, demonstrate the enactment of a securitized state against the perennial state of insecurity (Mbembe, 2019). A state of insecurity, in which the moving object is no longer just those divested from national membership but technological objects and machines which will come to constitute state power itself (Mbembe,2019).

THE PREDICTIVE GOVERNANCE & AI AS STATECRAFT

At present, Canada is actively engaged in the transformation of its government and markets to become integrated with AI applications and infrastructure. In a review of 84 Canadian AI-based governance initiatives, Frost, Brandusescu, and Lyon (2024) found that most of these initiatives focused on “developing programs, policies, and strategic plans to intervene in industry and innovation, technology production and use, AI research, and public administration”. Continuing in its nationally scaled AI strategy and partnered initiatives, Canada subscribes not only to the promise of technological advancements for its markets and citizens, but also to the promise of predictive governance. With techno-enmity and its uncertain futures on the horizon, AI’s pre-

emptive and predictive promise are central to governance aspirations of control both within and outside its borders. Pre-emptive and predictive applications of AI are essential to state imperatives of pre-empting risk, whether real or perceived. As the march towards a supposed universal modernity continues for liberal western democracies, and the promise of “human determination that doubles as an injunction to control” become more achievable through AI, Hong (2022) shows how the “growing emphasis on *prediction* as AI’s skeleton key to all social problems” has come to “govern how facts and values relate to each other (371 – 372)”. The state imaginaries of predictive techno futures operate then as modalities of “historical futures” in which “social problems are made conceivable only as objects of calculative control (Hong, 2022, 372).” While such control can never be actualized, techno futurity is maintained through “ritualized demonstrations of predictive time” where the “transition from past to future is reenacted again and again in these rituals, reaffirming the arrow of history (Hong,2022,372).” The “promised future remains much the same as before”, reaffirming Mbembe’s conception of the “moving object”, required for state’s mobilization of securitization of its state and boundaries (Mbembe,2019). Useful for this analysis is the role of prediction within the context of AI governance and its use of predictive analytics. The concept and promise of ‘prediction’ is productive in that it:

...produces tangible “problems” around which seemingly concrete, real – world proofs of automation and artificial intelligence can be produced --- and it connects those demonstrations with the broader horizon of transformative progress. (Hong,2022, 381)

Thus, the productive tense of prediction and predictive applications of AI act as mythical terrain upon which technological breakthroughs can enact their immediacy in

provisioning that which is supposedly concealed and hidden. Where prediction acts as “the vanguard of both immediate proof and long-term progress (Hong, 2022,382)”. In turn, the advent of prediction and predictive capabilities maintain the promise of technofuturity. Especially important to this discussion is the distinction between what is promoted as achievable and what *is* achievable by AI, as

...these predictive technologies do not succeed or fail by rigorous tests of accuracy ---- tests that themselves can never be neutral because they require political choices about which use cases and ideal subjects populate these tests. (Hong, 2022,382)

Data driven determinism is meant to enchant, and in its governance capacity, it does not seek to put forward the unknown more than it perpetuates fears of what is already known. In this way, the moveable object of enmity remains on the horizon for technomobilizations to determine, detain, deter, and decimate. The predictive governance and its mobilization of predictive technologies, “operates less as a technique to foretell later events and far more as a framework for capturing” the social and political and enact upon them calculable control (Hong, 2022, 384). These technologies are not only mobilized for those outside national borders, but also for those it has divested from social inclusion. Predictive policing technologies represent not just the growing relationship between the state, enforcement, and computational abilities, but also depict the “project of datafying” marginalized members of the community (Hong, 2022, 385). Power is not enacted in the neutrality that is often associated with algorithmic and predictive technologies. Instead, it enacts a pre-existing politics of what is known, what is already segmented as allowable and not, what must be culled, and what must be deciphered. These predictive abilities

would not be possible without the acceleration of data collection through mandatory engagement with technological governance mediums.

For Fourcade and Gordon (2020), these processes are conceptualized as the practice of “data minting” in relation to new capacities of the state in a datafied world (90). The state cannot simply generate value from predictive technologies, nor can it produce data in the same way as it does money (Fourcade and Gordon, 2020, 90). However, it can generate actionable data through “compulsory interactions from --- policing to border security to tax collection to census taking --- the state mints data (Fourcade & Gordon. 2020, 90)”. While there are mandatory avenues for state-sanctioned data collection, other avenues become voluntary as they are associated with a citizen’s participation in society. Some of these activities are framed as a part of the citizen’s positive contributions to society, for example observing, recording, and reporting criminal activity, as well as participating in voluntary census activities (Fourcade and Gordon, 2020, 90-91). Of note is the fusion between AI companies and state imperatives, where companies such as Palantir and QuantCube which “measure economic growth in the world” by extracting data from social media, internet queries, and GPS coordinates, highlighting how “the state increasingly sees through the eyes of the market as it imports privately generated tools into its governance apparatus (Fourcade and Gordon, 2020, 93).”

As the legal boundaries between state and privately manufactured AI tools disappears and newer forms of knowledge and truth making unfold, the emergent mode of an AI reliant statecraft is undeniably upon us. This not to suggest that there is anything particularly novel about AI augmented statecraft, instead, I argue that AI is facilitating

existing programs of statecraft and consolidating a visible convergence between the state, and technoscientific venture (Jasanoff, 2004). For Fourcade and Gordon (2020), such a convergence would demarcate a mode of statecraft they refer to as the “high modernist state” which is:

...congenitally fearful that society (especially its remote and peripheral regions) is slipping out of control, overflowing its proper borders, and eluding the metropolises grasp. It deals with this problem by imposing borders, taking censuses, and coercing those on the outskirts of society into legibility. (Fourcade and Gordon, 2020, 96)

The conception of the high modernist state captures the foundational aspects of this dissertation’s theoretical intervention on the formation of an emergent techno-sovereignty vested in techno-enmity, where AI and predictive governance technologies serve as the face and mode of statecraft (2020). For Lazaro and Rizzi (2023), the “current convergence between AI and governance is shaping a new sociotechnical imaginary”, highlighting the state’s mobilization of three key principles of “precaution, pre-emption, and preparedness” in the “face of uncertainty and indeterminacy (70)”. The first principal sheds light on the duality of AI in governance initiatives, which “refracts precautionary attempts while at the same time is increasingly embedded in large – scale preventative action (Lazaro and Rizzi, 2023,78)”. Pre-cautionary measures against AI are subsequently seen as a hinderance to innovation, stifling technological progress. Thus, AI from the governing perspective is not the subject nor “object of regulation”, but instead a system of predictive governance established for “precautionary purposes” in a myriad of governance areas (Lazaro and Rizzi, 2023, 78). The second principle of pre-emption further illustrates this duality in governance practices. Pre-emptive logics are meant to pre-empt risk and aid in determining the course of action, however they also limit or

“diminish a person’s range of future options”, signaling a “problematic relationship with the future” where “actuarial and pre-emptive temporality” smooths the terrain of the present into “predetermined courses of action (Lazaro and Rizzi, 2023,78).

Lastly, the logic of preparedness also exercises its duality in that it presents the worst-case scenario, which predictive analytics were meant to pre-empt, and at the same time makes it “fundamentally unavoidable,” thereby warranting a predetermined response (Lazaro and Rizzi,2023,79). This analysis illustrates the contradictory promise of predictive governance, by pulling the curtain on the ‘magic’ of AI and its powers, or and by delineating the use and function of prediction as a mobilizing concept for technological governance. It also reveals the ways in which AI and its generative powers have come to constitute a new mode of statecraft wherein the supposed precaution, pre-emption, and preparedness for a future known or unknown allows for national governments to assemble themselves in the image of AI itself and view the world and its citizens through actuarial features and lens of the private sector. Thereby advancing this dissertation’s central argument pertaining to the perennial nature of the state of enmity within the governing apparatus and the emergence of techno-enmity that forms not only the state’s approach to technological advancement and autonomy but also its differential relationship with those it deems subjects and non-subjects both within and outside its borders.

CHAPTER 5: AI, SOVEREIGNTY AND SUBJECT FORMATION

Having discussed federal Canadian immigration policies and the federal use of AI and digital mediums in administrative and sorting activities, this chapter explores the intimately coalesced notions of sovereignty (marked by varying forms of groundskeeping and innovation alike), borders, and bordering (as an active program).

Borders and bordering are an act of sovereign grounds keeping, through which subjects understand and construe their own identity and the identity of those divested from membership. Such boundary drawing is twofold, where it is both geographical and psychological, allowing subjects to understand themselves in relation to the state as well as perceive others outside the state, generating a moral or amoral picture of those outside of said boundaries.

This chapter seeks to present the following: 1) The relationship between sovereignty, spatial territorialization, and subject formation; 2) An analysis of how borders and the act of bordering stretches sovereignty and its grasp whilst minimizing international obligations; 3) The reliance of Western notions of sovereignty on the politics of difference and relations of enmity as illustrated through the development of AI technologies; 4) An analysis of qualitative interviews conducted with experts in the fields of Canadian law, Immigration, AI and subject matter experts to capture socially grounded responses to Canada's integration of AI in immigration and public services and 5) How the use of emerging AI technologies (both internally and at borders), and the construct of citizenship, come together to enact gendered and racialized differences that foundationally underpin the Western sovereign order.

THE EXERCISE OF SOVEREIGNTY AND BORDERING

To demonstrate how the use of AI stretches sovereignty, I draw on Mbembe's conception of sovereignty and how it is marked by specific understandings of spatial reasoning in a way that generates enmity (2003). A critical understanding of the spatial relations that sovereignty imposes on immigrants, refugees, and asylum seekers aided the analysis on the construction of state subject vs. non – subject formation, informing present day applications of border technologies. Mbembe (2003) posits that the “ultimate expression of sovereignty resides...in the power and capacity to dictate who may live and who must die”, and that to “exercise sovereignty is to exercise control over mortality and to define life as the deployment and manifestation of power (11 - 12)”. I extend Mbembe's notions of sovereignty in relation to the state of exception employed through Canada's participation in interdiction practices in immigration spaces (air, land, and water). In a global sense, Mbembe's conception also aids the differential reactions towards death and tragedy, where the divestment from political status (i.e., lack of citizenship, permanent residence, and visas) becomes the grounds through which the West exercises moral distancing from the plight of refugees and asylum seekers (2003). This has been especially true given the shifts in political discourse blurring the distinctions “between the ideas of the refugee and the illegal immigrant”, resulting in the “discursive disappearance of the refugee (Mann, 2009)”. In line with shifts in the perceptions of which immigrant is deserving or non-deserving of protections highlighted in the United Nations Declaration of Human Rights (UNDHR), we see more efforts made towards interdiction, wherein the state of exception “acquires a permanent spatial arrangement that remains continually outside the normal state of law (Agamben via Mbembe,

2003,13).” Mbembe’s reading of necropolitics in conjunction to the relation of enmity further affirms the theoretical intervention of this dissertation which argues that the state of techno-enmity informs Canadian subject making via recruiting, excluding, and disproportionately using AI on immigrant and refugee communities.

For Mbembe, the state of exception and the relations of enmity, “labours to produce” and “continuously refers and appeals to exception, emergency, and a fictionalized notion of the enemy (Mbembe,2003,16).” In this context, the ‘discursive disappearance of the refugee’ can be understood in relation to the continuous appeal to notions of the moving object or an eternal enemy outside the boundaries of citizenship and sovereign order. Within the calculus of exclusion and mortality, race and racism are particularly productive in that “race has been the ever-present shadow in Western political thought and practice, especially when it comes to imagining the inhumanity of, or rule over, foreign peoples (Mbembe, 2003, 17).” Technological advancements have long played a role in the “imaginaries of sovereignty”, which resulted in the “subordination of everything to impersonal logic and to reign of calculability and instrumental rationality (Mbembe, 2003, 18)”. Of particular importance to this dissertation is the relationship between territorialization and the exercise of state sovereignty, in which territorialization supposes the “determination of its frontiers within the context of a newly imposed global order (Mbembe,2003, 23)”. Within the context of late and modern colonial global ordering, the:

...writing of new spatial relations (territorialization) was ultimately, tantamount to the production of boundaries and hierarchies, zones and enclaves; the subversion of existing property arrangements; the classification of people according to different categories; resource extraction; and finally, the manufacturing of a large reservoir of cultural imaginaries. These imaginaries gave meaning to the enactment of differential rights to differing categories of

people for different purposes within the same space, in brief the exercise of sovereignty. Space was therefore the raw material of sovereignty and the violence it carried with it. Sovereignty meant occupation, and occupation meant relegating the colonized into a third zone between subjecthood and objecthood. (Mbembe, 2003, 26)

This form of territorialization is enacted and preserved within the day-to-day operations of migration management and its associated technologies. In a brief provided to the Canadian House of Commons Standing Committee on Access to Information, Privacy and Ethics (ETHI), Molnar highlights various technological experiments within migration and border spaces which resulted in preventable deaths (2023). Molnar's examples of the "rise of new prison like refugee camps in the Aegean islands" which are "part of an increasingly virtual and violent Fortress Europe" support the expansion of sovereignty and the state of exception into the maritime through virtual interdiction, as well as the construction of the 'third zone' (Molnar, 2023, 2 -3). The camps in question are "...surrounded by layers of barbed wire, with algorithmic motion and "risk" detection surveillance, finger-print scanners, and even virtual reality technology currently being tested out to monitor people living inside" (Molnar, 2023, 3).

The testing of new and emerging technologies on migrants, refugees, and asylum seekers also highlights the notion of resource extraction fundamental to territorialization (the expression of sovereignty), where the raw data from interface, biometrics (fingerprints, iris and pupil scans), and motion sensing are all sources of actionable data capital. This is further evidenced through the example of the partnership between the United States Customs and Border Patrol, "Google Cloud AI, and Anduril Industries to create a new "virtual" wall of surveillance towers and drones", where "new surveillance technologies along the US-Mexico border have allegedly doubled migrant deaths

(Molnar,2023,4). Though new and emerging smart border technologies are not particularly useful in deterring migration, these technologies do push migrants into dangerous and unsafe passageways, where the closure of official channels and spaces of migration enforce sovereignty and spatial relations which enact death. While new technologies are not stand-alone enactors of necropolitics, notions of territorialization foundational to the politics of migration management, and to their programming, generate discriminatory and fatal outcomes for migrants. Molnar's example of Canada's testing of AVATAR, an AI polygraph which employs facial and emotive recognition to "discern whether a person is lying when presented with a series of questions at a border crossing" highlights the ways in which border crossings have themselves become spaces of exception where the state exercises interdiction (Molnar, 2023, 6).

Recognizing Canada as a "leader in the successful pre-emptive interdiction practice of controlling immigration at its sources", Davidson shows how Canada successfully "inflected the nonplace politically" and how it impacted those it deemed "unauthorized travellers" (2003, 14). Davidson sheds light on Canada's use of the Celebrity Inn (prior to its closure in 2004), a hotel which temporarily functioned as a "... secure detention area for those who had arrived without proper identification and for immigrants who had been placed in Citizenship and Immigration Canada's "removal stream" awaiting deportation (2003, 14)." Here the distinction between three groups of people within the same shared space (travellers and detained peoples), shows how:

states actually manage their own national trajectories --- that is, the manner in which they develop or evolve in space and time, through both policy and practice related to citizenship and frontiers --- while impeding the personal trajectories through space of "unauthorized" individuals as well as diasporic groups who would seek to enter a state's sovereign district and as a result, in the state's perception alter its constitution. (Davidson, 2003, 6)

While Canada does not participate in interdiction programs such as the Australian “Pacific Solution”, this excision of internal space creates “a physical buffer oriented towards the outside so as to preserve the privileges and extended rights of the core” where the “protected and fully empowered citizenry” live (Davidson, 2003, 8). Canada also employed Migration Integrity Specialists, who between 1997 and 2003 “stopped more than 40,000 people with improper documents before they boarded planes for North America (Brouwer, 2003)”. Brouwer defines the job of Canada’s migration integrity specialists as:

...almost exactly the opposite of what the words mean: their job is to intercept (or "interdict") travellers, enforce visa policies and generally bar from Canada anyone who hasn't been invited. It makes no difference that they may be refugees desperately trying to reach asylum or children seeking to be reunited with their parents in Canada; if they don't have a valid visa and a passport, they will be turned away. (Brouwer, 2003)

Primarily concerned with how interdiction acts as a threat to refugee and asylum seekers, Brouwer argues that such practices of interdiction conflict with the principle of *non-refoulement*, defined as, “the principle that a country may not return a person to a place where they would face persecution or torture (2003).” Despite Canadian refugee and human rights advocates fiercely opposing these interdiction practices, Canada and its allies continue to “harmonize their interdiction and other migration control measures... (Brouwer, 2003)”. The imperatives of sovereignty enacted through various means of interdiction and excision of internal space demonstrate how the state politically contorts itself in attempts to maintain its boundaries. Thus, borders equipped with new and emerging border technologies further enact and stretch this mode of sovereign logic fundamentally tied to differentiation and enmity.

AT THE BORDER

Borders, the processes of border governance, and the enforcement mechanisms that stem from therein are a means of territorial grounds keeping, but they are also “productive regimes both generated by reproducing racialized social relations, further imbued by gender, sexuality, class, ability, and nationality (Walia,2021,78).” Given that technological breakthroughs are playing an active role in consolidating sovereign orders, the convergence of emerging AI technologies with Western border governance imperatives necessitates the reproduction of social categories of differentiation. For Walia, there are four major governance strategies of “exclusion, territorial diffusion, commodified inclusion, and discursive control”, all of which converge to establish a “power structure constructing racial differences and hierarchies (Walia, 2021, 78-81)”.

Border governance strategies of exclusion seek to expel certain peoples through walls, deportation, deterrence, and criminalization practices, while also entrenching territorial control to ensure a particular “racialized nationalist identity” which relies on the branding of migrants, refugees, and asylum seekers as undeserving or undesirable (Walia, 2021, 79). As Walia argues, that there is nothing organic about the illegalization of peoples (2021). They are not inherently illegal; rather, they are assigned “illegality”, with pathways to legal residency shrinking globally (i.e., rejection of refugee and asylum claims, monetary barriers to application, and the hierarchies of passports, resulting in higher numbers of vulnerable populations migrating irregularly (Walia, 2021, 79). Bordering practices are therefore established against a wide array of “discursive figures: the illegal, the terrorist, the criminal, the foreigner, the invader...” with “walls” serving as the material means of deterrence whilst surveillance technologies serve as the

immaterial or data-based pre-emptive means of deterrence (Walia ,2021, 80). Deterrence mechanisms both a response to, and a means of, mobilizing nationalistic sentiment and racial orders. Deterrence mechanisms enforce pre-emptive schemas through physical and virtual walling and securitization necessitates differentiation to establish a ‘good / desirable’ (im)migrant against a ‘bad / undesirable’ migrant (Walia, 2021, 80).

Post-9/11 securitization efforts surged into a 500 billion American Dollars (USD) border security enterprise, this industry accounts for a variety of surveillance technologies including “automated decision making, predictive data analytics, facial recognition software, and biometric systems tested on migrants and refugees... (Walia, 2021, 80)”. The convergence of nationalistic boundary drawing and capitalist securitization schemas to enforce said boundaries place the vulnerable of the migrant communities, in harm’s way to become “the sources of surveillance capitalism’s crucial surplus: the objects of a technologically advanced and increasingly inescapable raw material – extraction operation (Walia, 2021, 80)”. As border administrators leverage the proliferation of AI-based technologies to advance bordering regimes, the border comes to enact the logics of raced and gendered differentiation both legally (i.e., differentiation through citizenship status) and extralegally where pre-emptive practices produce irregular (im)migration patterns.

Reports of gendered forms of violence at the hands of border enforcement officials, administrators, or even humanitarian staff are common, thus gendering the processes of identification, capture, and confinement practices at the border (Obradovic, 2015; Walia, 2021). Forms of discrimination at the border become multi-directional in relation to sexuality and gender. For women specifically, racism and sexism “intersect to

compound the human rights violations that refugee women experience... (Pittaway and Bartolomei, 2001)". Apart from the prioritization of a labouring subject, moral judgements have always been more pronounced for refugees in Canada; historically, "immigration officials preferred 'whole' families, that is a complete nuclear family with both parents' (Ep,2017,12)". For Epp, such preferences still hold today, where "unmarried women with children, widows, and other fragmented family units" are undesirable as they are viewed as social and or economic liabilities (Epp, 2017, 8). These bureaucratic processes have also led to the separation of refugee claimants from their children, in some cases for nearly a decade, prompting the Canadian Council for Refugees to campaign for family reunification (Epp, 2017, 27).

While the categories of refugee and asylum are categorized as compassionate or humanitarian grounds for (im)migration, the process is anything but compassionate. Material differences (class), and the (in)ability to meet the fluid and changing characterizations of "well – founded fear of persecution" render the process arbitrary (Walia, 2021, 86). These decisions, whilst previously at the discretion of human officers, are increasingly at the discretion of technologically or digitally mediated sieving applications, sorting for value, without considering the generation of outcomes that replicate social biases. As political instability and climate change result in further displacement, there is an overt reduction in sympathies for refugees and asylum seekers. In example, the Canadian government's passing of Bill C-31 (2012) titled "Protecting Canada's Immigration System Act" under the Conservative government (Epp,2017, 26). The bill had been widely criticized for its human rights implications and the stricter approach it took towards refugees and asylum seekers. The document compiled a list of

“designated or so called ‘safe’ countries of origin, places that Canada did not consider to be producers of refugees (Epp, 2017, 26).” Although the safe countries of origins list fails to account for political basis of persecution, immigration programs themselves are subject to the discretion of policy makers and current office holders. The political leanings of ever-changing governments impact the dichotomy of desirable/undesirable (im)migrants, which then implicates the introduction of decision-making and surveillance technologies. Immigration specialists and participants from the field of immigration brought forward similar concerns. For Maximus, an attorney interviewed for his specialization in immigration law, gendered complexities of cases are far too common, requiring discretion and human understanding of non-linear marital affairs when it comes to immigration. Maximus even stated:

What about the woman who was forced into a marriage and then was able to get out of it and then was sponsored to Canada only to be suffered terrible abuse at the hands of their sponsor and must get out of the marriage. Will the AI algorithm distinguish between someone who’s been through two horrible situations? And someone who may have been involved in potentially marriage of convenience issues and other things, will they be streamed the same way and put in the same batch? So, unless you have that type of nuance and that type of ability, we need stay away from those types of distinctions **(Maximus – Immigration Law Participant)**

It is unclear how the AI based sorting in its many forms, including the accumulation of certain data points or automated form filling, will accurately capture and present to information about complex cases to border officials and decision makers. Gender-based analysis and disaggregation of (im)migration data reveals women make up half of displaced and refuge seeking populations (UNDHR, 2024). However, when accounting for populations internally displaced by war, women and dependent children make up

over 80 percent of the total refugee population, where women and girls are more vulnerable to varying forms of mental and physical violence (Ross – Sheriff et al., 2012).

As scholars increasingly work towards the disaggregation of existing data to analyze its gendered dimensions, parallel to these are efforts to collect and base decisions off gendered data to track and manage the mobility of (im)migrating women. While scholars agree that (im)migration is most certainly a gendered issue, the introduction of migration management technologies and their gendered schemas remain understudied (Epp, 2017, Walia, 2021). Migration management processes, policies impacting women's mobility are, and the convergence between the management of immigration and AI-based migration management is of international feminist concern. Data which aids interdiction and predicts movement also has gendered dimensions, given that women are more likely to experience displacement, gender-based violence, and inequalities during their displacement and immigration journeys. The gendered aspects of international migration and the convergence between migration and technological sovereignties are unfolding on a gendered axis of international (im)migration management schemas. Gendered violence in the context of migration and refuge is multi-directional, involves multiple agents, locals, and geo-political settings. Ross-Sheriff (2012) uses models developed by Cox (1987) and Berry (2001) to discuss the five stages of displacement and migration, identifying how violence multiplies at each stage for women and girls:

1. pre-uprooting/pre-flight in countries of origin; 2. uprooting when they flee their homes to avoid persecution; 3. transition in refugee camps, camps for internally displaced persons (IDPs), or as self-settled refugees in countries of first asylum; 4. resettlement in countries of first asylum or to a second country of asylum or repatriation after the end of war; and 5. adaptation and integration to a new homeland. (Ross – Sheriff et al, 2012)

At stage 1, vulnerability for women increases as war becomes increasingly localized; men either leaving to fight or flee, and there is a scarcity of resources. During this time, women are often left behind to manage their households, care for their children, and seek safety elsewhere. In this context, violence can be experienced as both an internal struggle for resources and sexual violence, the latter of which is often used as a weapon of war (Ross – Sheriff, 2012). The subsequent displacement that emerges in steps 2. uprooting and 3. transitions interface with numerous authority figures, the lawlessness of migration routes, and the general lack of protection during travel amplifies the risk of physical and sexual violence for migrating women. The advent of resettlement (steps 4. Resettlement and 5. adaptation) do not necessarily relieve women from the threat of violence. For example, Amnesty international (2021) found 66 cases of former refugees in Syria who were tortured and experienced sexual assault upon their repatriation. These instances do not account for the psychological toll of conflict, nor poor health resulting from displacement. The multidirectional nature of violence and the ongoing nature of war and recent major displacement events (i.e., Ukrainian and Russian War, Syrian Civil War, Withdrawal of US forces from Afghanistan, Palestine and Israel Conflict) suggests that it is not enough to simply develop a gendered theory of migration. Rather, any such framework must also account for the intersecting nature of gendered data collection, the differential impact of migration technologies on women, and actionable policies to respond to the concerning data that is generated.

Interviewees expressed a range of gendered concerns which are both unaccounted for and irreconcilable with the current knowledge of Canadian use of AI in immigration management. For Sabrina (Immigration Field Participant), the concerns are both

gendered and about trustworthiness of immigrants at large. Sabrina shared the following when asked about her worries regarding asylum and refugee claims made at the border:

Often the issues people and more women worry about is, will they believe me? Will the judge or case worker believe me if I say I am in danger if I go back? But if that goes to the machine...then what? Because everyone is not making it straight to Canada...It is a journey to many other countries and then finally to Canada and then they must learn the language or find a lawyer who speaks their language and understands them to properly handle their case. Immigration is so complex for so many people now, adding more things to it that very few will know how to deal with is scary to think about. **(Sabrina Immigration Field)**

Concerns surrounding the believability of women are well founded, especially in the Canadian context. For example, in 2019, the case of Halima Alari, a Nigerian woman seeking asylum in Canada, made national headlines (**Figure 17**).

INVESTIGATIONS

Refugee judge asks woman why her husband wouldn't 'just kill' her



By **Brian Hill & Jamie Mauracher** • Global News

Posted November 27, 2019 6:00 am ✓

14 min read

Figure 17. *Halima Alari Case*, Image sourced from [Global News Canada](#), 2019.

Halima Alari was seeking refuge in Canada from her husband, whose abuse worsened “each time she became pregnant with a girl”, as he wanted a boy (Hill & Mauracher, 2019). During her hearing at Canada’s Immigration and Refugee Board (IRB), Judge Yonatan Rozenszajn asked Halima, “if he really wants you to be gone, why doesn’t he just kill you?” and “Why wouldn’t he just kill you then? Why spend all these years, just, like harassing you? (Hill & Mauracher, 2019).”. In his final decision, Judge Rozenszajn wrote, “I do not believe what she says” and rejected her claim for refugee status (Hill & Mauracher, 2019). Despite the IRB’s set guidelines for cases that involve sexual assault,

gender-based violence, and domestic abuse, breaches can and have occurred (Hill & Mauracher, 2019). Halima Alari's case demonstrates the un-gendering Black and racialized women undergo through the Canadian legal system, where Halima's suffering becomes illegible through the Euro-Western norms and narratives of what constitutes womanhood, gendered violence, and vulnerability (Ahmed and Agathangelou, 2019). The Global News investigation of Halima's case further revealed there to be "significant variation in approval rates for vulnerable person applications across the country" where between 2016-2019,

...judges at the IRB's Toronto office rejected 63 percent of the vulnerable applications they received, while the board's Montreal office rejected 22 percent of applications. In Vancouver, just 6 percent of applications were rejected. (Hill & Mauracher, 2019)

While the variances in approval rates highlights and quantifies discretionary powers of the IRB, the question remains: how would AI or digitized border regimes process complex claims relating to gendered violence and other non-linear information presented in a case? And how does one appeal cases where applicants are unsure of where breaches like the one above took place? Another concern brought up consistently was that of social or technological bias. Interviewees consistently brought up, either passively or overtly, the centrality of bias to the discussion of migration management and emerging technological changes to it. In asking participants to respond to whether technologies are neutral decision makers, in relation to the changing social and political attitudes towards immigration, Gus, an immigration subject matter expert responded:

I don't know about neutrality...but there are some biases that aren't even particularly evil but are simply responding to some kind of political imperative. So, meaning, you know right now there's a political imperative to expedite Ukrainian applications, it's a conflict zone, it needs help. But of course

systematically speaking if you spoke to someone and said ‘you know it’s kind of a biased expediency’, [the answer would be] yes, in a political imperative based context, but it is needed, so how that translates to when we say ‘bias’...and of course we have to embed this selectivity or ‘bias’ into your selection process, now how does this translate in machines, I’m not sure but bias to selection is necessary in these processes. **(Gus – Subject Matter Expert)**

Gus presented an important framing of bias as politically and socially necessary, which speaks to the understanding of how world views are anchored in political ques and identities. If selection bias is fundamental to the processes of immigration, then could there be a reframing of selectivity that would benefit vulnerable applicants and what kinds of political landscapes would be required for justice-oriented applications of AI to be made possible?

CODE GOVERNANCE

Within the discourse on the integration of privately developed AI into public and state domains, Burrell and Fourcade highlight the emergence of a “*Coding Elite*”, a group which has “consolidated power through their technical control over the digital means of production and by extracting labor from a newly marginalized or unpaid workforce, the cybertariat (2021).” This group consists of Big Tech CEO’s, software designers, developers, engineers, and computer scientists, are assigned to this influential class of people, “... who own the code and can employ others to deploy it as they see fit (Burrell and Fourcade, 2021).” Examining the ever-growing political life of computer science both as a discipline and practice, and despite the marriage between governance and technological innovations, disciplinary boundaries still influence research and praxis in political science and computer science. Burrell and Fourcade assign special ‘powers’ to the “interpretive work that computer scientists must perform in order to translate social

norms and legal rules from human language into computer code (2021)”. The conception of code governance highlights the continuities of imbalanced power relations which undergird AI’s integration in governance apparatus, code governance is defined as a process where:

First, code makes the world legible. It speaks for people and objects by reconstructing them into machine – readable entities that can be acted upon. Second, code enforces. It admits and excludes, separates and allocates in much the same way that law does. (Burrell and Fourcade, 2021)

The ever-growing role of computer scientists, software developers, and the tech field at large in matters of governance and public administration requires cross-disciplinary partnerships, collaboration, and public dialogue to generate inclusive policy in relation to automation of public services, processes, and interface. To bridge this gap, participants from the tech industry were interviewed to gain their perspective on the role of technology in immigration management and public governance more broadly. When asked about AI’s framing as ‘the solution’ to a variety of immigration processing issues, and to comment on what ‘problems’ AI is supposedly solving, Thomas and Damien, tech field participants shared:

That depends on who you ask...It could change based on the file or client we are working with. Because it’s what the client wants, we don’t necessarily have the ability to intervene in their vision of what needs to be done. I can tell them how it can be achieved, the cost, how many hours it would take, and guide them through the testing and launch phases of whatever platform or software we are designing...but it’s never really a two-way conversation. So, I guess, usually what we do is, try to make things quicker and more efficient, so the problem would be like backlog or eliminating paperwork. **(Thomas – Tech Field)**

I guess businesses are trying to make sure they are ready for more digitization, like how a lot of businesses and even governments began using QR codes for vaccine information. A lot of it is just about keeping up...If your study wants to understand how the tech field would see new technology being used in immigration, then I guess the problem is speed? Things would probably just need

to be faster, more efficient; we've got to be able to say no quickly and yes quickly too. **(Damien – Tech Field)**

Both participants discuss the importance of speed and efficiency as priority in both design and clients' requests when procuring services related to AI-based solutions. Both Damien and Thomas frame their involvement as servicing the goals or visions of their clients rather than shaping policy and or social outcomes. Their relationship depicts the technosolutionism espoused by Madianou (2019), the belief that backlog or administrative delays are solved by adopting new technological tools rather than addressing ongoing issues of access, funding, and larger policy gaps. They highlight the governance gaps between the implementation of new technologies and intentional or human centered policies of access. When participants were asked to share their thoughts on the impact of new technologies on immigrants, another participant from the tech field, Angelina, responded by illustrating the day-to-day operations which inhibit or compartmentalize each aspect of the development of a technical project, which can often hinder connecting a project to its social justice implications or outcomes. She shared:

Everything can be harmful if you don't do it right. But if it's more like do I get to review the outcomes of a project for its impact on people, I do but in a very narrow sense. And it really depends on what my assignment is too. Even in our field everything is split into roles and responsibilities, so because I am on the developing side, I may not be a part of the team doing the QA [Quality Assurance] ... I'm actually not even sure at what step would someone intervene with what the client asked for...we are not really having conversations about how to make justice-oriented technologies, we have monetary risk attached to our deliverables. If it's not on time, we lose money or risk not getting another contract. The client can tell us that they want, something that is sensitive towards certain data points, but this is my 9 – 5 [job] so sometimes when I design or complete a task, that's it. I can't stall progress to think about if what they are asking for will have negative impacts, that's on them, they have to know their rules and regulations, like I have to know mine. **(Angelina – Tech Field)**

The interviewees explain how the processes of development for clients (whether in the private or public sector) follow a singular business-oriented and objectives-based execution. This does not suggest that their jobs are apolitical, but rather that market orientations of tech and now computer science applications render it difficult for many tech employees to find themselves in roles which would allow for intervention.

In Angelina's case, the emphasis on dichotomies between different teams on a project and the limitations to input based on tasks assigned helps explain where significant gaps, both in terms of academic disciplines and social application, exist and flourish. Most importantly, the dichotomies in responsibilities for understanding rules and regulations also reinforces this gap. The technology sector is primarily concerned with acting within the confines of its rules and regulations, whereas a public sector client would be motivated by their own goals. The convergence of both industries creates a gap in knowledge of each other's spheres and differential bottom lines. Private sector organizations strive to ensure that their deliverables are timely, meet the clients' requirements, and result in more contracts; on the other hand, public sector organizations seek to provision goods or services for the general population, in line with a variety of standards regarding accessibility, equity factors, and transparency. However, as the literature has shown, rather than leveraging its partners in tech to develop public-centered goods, the public sphere is becoming increasingly aligned with the visions of private markets. For example, despite never being tested in conflict zones, Clearview AI provisioned its services to Ukraine's Defence Ministry on a complimentary basis, initially stating that it would be used to "identify the dead, to combat misinformation, and to vet people at checkpoints (Dowdeswell, 2023, 74)". However, once the technology

became available to the Ukrainian military, “no efforts were put in place to ensure” false positives, or to ensure that civilians seeking humanitarian assistance would not be erroneously targeted by the facial recognition technology (FRT) (Dowdeswell, 2023, 74). In response, Clearview AI distanced itself from knowledge of how its software was being used, stating that the “exact purpose for which Ukraine’s defense ministry is using the technology is unclear (Dowdeswell, 2023, 74)”. Thus, responsibility for the outcomes of the use Clearview AI became suspended between both the private sector (the company itself) and a government (Ukraine), where it remains unclear which of the two actors is liable for using these technologies in alignment with the Geneva Conventions and other relevant treaties on warfare.

TOWARDS A DIGITIZED PUBLIC

Having considered the external and conflict related uses of AI, this dissertation examined how privately contracted forms of AI constitute a variety of the state’s internal enforcement mechanisms in relation to federal and provincial policing. As the interviews highlighted, the emphasis on keeping up technologically has led to the proliferation of AI and other digital technologies in a variety of public services. However, AI’s deployment is not limited to borders and conflict zones. These technologies are also digitizing citizens for a variety of state measures and processes. In Canada, law enforcement agencies at the federal and municipal levels have deployed AI through facial recognition technologies (FRT). In 2019, the Royal Canadian Mounted Police (RCMP’s) National Child Exploitation Crime Centre (NCECC) began using Clearview AI’s facial recognition to identify children who were victims of sexual exploitation (Goltz et al, 2023, 69-70). The RCMP made use of its free trials (offered to law enforcement by

Clearview) and purchased two separate licenses, which were used in the provinces of British Columbia, New Brunswick, Manitoba, Alberta, and their national headquarters located in Ottawa, Ontario (Goltz et al, 2023, 70). The NCECC used Clearview’s FRT in 15 cases, resulting in 2 rescues of children. In total, the RCMP deployed FRT “in 84 investigations between October 2019 and February 2020” (Goltz et al, 2023, 69).

The Toronto Police Service also used Clearview for its investigations during this same period (Goltz et al, 2023, 70). Outside of these disclosed searches, the RCMP conducted hundreds of additional searches for which they did not disclose the purposes per the Privacy Commissioner of Canada. Reports found that in some cases, the use of FRT was not “authorized nor subject to any internal controls (Goltz et al, 2023, 70).” In a sweeping review, the Privacy Commissioner of Canada found that Clearview AI had

...violated Canada’s privacy laws when they collected Canadian’s private information without their consent by putting together an image database of about 10 billion photographs for comparison. Clearview countered that these photos, which had been scraped from the internet and social media sites, had been made publicly available when they were posted. The RCMP, in turn, relied on Clearview’s assertions that the photos had been made ‘public’. The Privacy Commissioner found that the RCMP would have had to have obtained the subjects’ consent to use their images in their investigations. (Goltz et al, 2023, 72)

In this case, the data used to train the algorithms of Clearview AI were subject to much scrutiny, with very many of its applications resulting in legal action in the United States, France, the United Kingdom and beyond (Goltz et al, 2023, 72). However, this did not deter Canadian police from continuing to adopt AI based surveillance tools. In 2024, York Regional Police (YRP) in partnership with Peel Regional Police announced that they had selected a vendor to provide them with FRT, to be deployed starting in May 2024 ([YRP, 2024](#)). The system is provided by “industry leader IDEMIA” and will be

used to compare faces with those “in the criminal booking image (mugshot database)”

the YRP goes on to highlight the benefits FRT as follows:

Facial recognition technology protects the integrity of the investigative process as it is not susceptible to the biases that exist in eyewitness accounts. The facial recognition system will assist officers to identify suspects more quickly and more accurately, freeing up invaluable investigative resources. It will drastically reduce time spent manually comparing images to mugshots... This technology represents a natural step forward for police investigations and will serve as another tool in our efforts to keep all people in our regions safe. ([YRP, 2024](#))

The YRP further states that FRT is in use across Canada as follows:

Law enforcement agencies across Canada are already using facial recognition technology to help solve crimes, including homicides, sexual assaults, robberies and others, in the communities they serve. Facial recognition technology is already deployed at airports and other border checkpoints across the country to keep Canadians safe. ([YRP, 2024](#))

The excerpts from the YRP website show that digitization of public services and process is well under way, however, of particular interest to this dissertation is the emphasis that facial recognition software is “not susceptible to the biases that exist in eyewitness reports ([YRP, 2024](#)).” Yet, FRT has proven less reliable than other forms of identification data (i.e., fingerprints and iris scans), as FRT is “not built to identify particular people (Goltz et al, 2023, 71).” Instead, FRT relies on the measurements of the distances between various facial features (eye, mouths, nose width), which “produce a vector value that serves as a proxy for a given individual (Goltz et al, 2023, 71)”. These values are then compared against other vector values within databases to determine the probability of a match, where a tentative or “provisional identification is made when the probability exceeds a certain threshold (Goltz et al, 2023, 71).” Depending on how wide and varied the data set is, erroneous matches are possible. It is important here to understand FRT (and all AI) is not simply manufactured by society, but rather through

society, embedded in its political and social constructs. Earlier in the year, the Information and Privacy Commissioner of Ontario had already published guidance for Police in Ontario on the Facial Recognition and Mugshot Databases. Much of the report is concerned with public engagement and consultations (**Figure 18**), stating:

Recommendations:

- 6.1 Conduct meaningful public consultations with affected communities and interested parties about your program before putting it in place. In the case of current or ongoing programs, public consultations should still occur.
- 6.2 During your public consultations, ensure you consider the privacy and equity concerns of marginalized communities, including those who are disproportionately affected by systemic discrimination and over-policing practices.

Figure 18. *Information and Privacy Commissioner of Ontario, Facial Recognition and Mugshot Databases: Guidance for Police in Ontario (2024, 12).*

Despite the recommendations for public consultations and engagement of marginalized communities, it is unclear how group consultations with over-policed communities will result in the betterment or equitable use of FRT technologies, which, are built to operate through highly racialized data sets such as mugshot databases. For example, the overrepresentation of Black and Indigenous persons in the Canadian carceral system is well documented. The overrepresentation of Black persons spans across categories of “victims, survivors, as well as accused or convicted people ([Canada’s Black Justice Strategy](#))”. Similarly, Indigenous persons account for 32% of those in custody at federal corrections facilities ([Public Safety Canada, 2023](#)). Ongoing disproportion in carceral engagement, highly racialized data sets, and statistics make for inequitable responses in policy and technological deployment. While the offloading of enforcement and pre-emptive capture of criminality onto AI is packaged as the means to transcend human limitations of bias, racism, sexism, and other forms of discriminatory practice, scholarly

and primary analysis has shown that new and emerging technologies cannot be divorced from the sociopolitical terrain and the social values of those who design, construct, and program these technologies (Noble, 2018; Benjamin, 2019; Couldry and Mejias, 2018). When faced with questions of new technologies further entrenching racial and or gendered differences, proponents for technological advance often cite that AI and its varying expressions are 1) not human and 2) is, by that extension, endowed with a higher reasoning that cannot succumb to human errors. Benjamin challenges this notion, stating that while these technologies are marketed as having transcended human biases and other limitations, they are trained using data which relies on categories of social differentiation, specifically in terms of race, gender, geographic location etc. (Benjamin,2019). Thus, technologies supposedly blind to race are in fact coded with judgments that are seen as exterior to their functions. Benjamin illustrates this through the example of data sharing, arguing:

Data Sharing, for instance, sounds like a positive development, streamlining the bulky bureaucracies of government so the public can access goods and services faster. But access goes both ways. If someone is marked “risky” in one arena, that stigma follows him/her around much more efficiently, streamlining marginalization. (Benjamin, 2019,13)

Data sharing and new surveillance mechanisms, who they target in the post 9/11 era, shapes who is viewed as the citizen subject and who is viewed as the non-subject or threat. Furthermore, when situating such categorizations in relation to public applications of AI, the racial and gendered dimensions of surveillance become larger questions of whose membership is accounted for. Notions of humanity and citizenry are fragmented by race and other axes of difference, where there are “different genres of humanity: full humans, not – quite humans, and non- humans, through which racial, gendered, and colonial hierarchies are encoded (Benjamin,2019,31).” In this sense, the codification of

difference in the varied expressions of an emerging AI technological revolution is cause for grave concern, especially given the ways in which private sector AI now permeates public sectors such as health, education, and immigration (Benjamin, 2019, 158 -159). Furthermore, digital and AI based methods of categorization used in immigration processes have the power to inform all other aspects of social integration and access to resources. Given that immigration profiles act as a consistent metric of worthiness and access for non-citizens throughout their integration, the production of a datafied subjectivity continues to inform access well beyond the naturalization processes.

While the YRP claimed that FRT will support the elimination of biases in eyewitness statements, this claim is questionable at a time when police services across the country are struggling with bias and discrimination within their own operations. In 2017, the RCMP “collected questionnaires from around 5,438 asylum seekers featuring questions clearly coloured by Islamophobic stereotypes (Akhmetova, 2020, 8).” The questionnaire sought to capture information regarding the asylum seekers’ beliefs by including questions related to their perception of women who do not wear the hijab; their opinions on terrorist organizations; and how many times a day they prayed. Evidently, these questions were specifically targeted towards Muslims crossing the border, “as no questions were included about other religious practices or terrorist groups (Akhmetova, 2020, 9)”. The collected data was then “entered into a RCMP database which could be shared with CBSA and other security partners (Akhmetova, 2020, 9)”. Additionally, inclusion and consultation exercises are perhaps most useful when conducted prior to the design, development, and deployment of technologies rather than after the fact. These (proposed) public consultations on the use of FRT do not account for barriers such as

gaps in digital literacy, where proficiency of the internet and digital technologies is concentrated to 54% of Canadians aged 15 to 34 (Wavrock et.al., via [Statistics Canada, 2021](#)). The operationalization of AI and the digitization of the public engagement constitute methods of subject making, wherein the assumption of digital literacy excludes certain groups from raising concerns about their ongoing digitization and data extraction. At the border, a similar assumption is deployed, as those seeking admission ostensibly consent to the collection of their data as part of the immigration process. Whether or not each applicant, immigrant, or traveller consents to the collection of their data or not, AI is an increasingly prevalent part of the migration process. The proliferation of AI at the border represents the next step in entrenching social stratifications of power that shape and inform current ideals of membership within the state.

TOWARDS DIGITIZED BORDERS

The integration of data collection and digitization has successfully integrated itself into Canadian public processes and life. Whether it is at airports, land borders, seaports, or within policing processes, the digitization of borders is no longer pre-emptive. Two distinct processes come together to form and inform the digitization of people and their mobility within and outside Canadian borders. The first is of making known what is already perceived, upholding a confirmation bias loop. The second is the allotment of liberties based on the confirmation of said biases. Here, nothing is ‘inherent’ to AI or its algorithmic processes, as it is not operating outside the folds of Canadian social and political norms, rather it is mobilizing precisely what it is held above and outside of. In 2018, multiple reports found that the CBSA was using commercial third – party DNA services such as FamilyTreeDNA.com to determine the nationality of detainees either

ordered to be deported or awaiting deportation proceedings (Kassam, 2018; Akhmetova, 2020). While the CBSA attributed its use of commercial DNA tools as “part of a suite of investigate techniques” to determine an individual’s identity or nationality, immigration lawyers expressed concerns about consent and data privacy (Kassam, 2018). This case evidenced how biometric and DNA data are used to reinforce racialized imaginaries of citizenship and belonging, as neither DNA nor ancestry would account for a person’s nationality. The CBSA cited a DNA test which showed that a Liberian detainee had Nigerian roots, thus justifying their deportation to Nigeria amidst “Liberia’s refusal to repatriate its nationals...(Kassam,2018).” In a statement obtained by The Guardian newspaper, FamilyTreeDNA (FTDNA) stated that “it had no knowledge of Canadian Law enforcement or its border agency using the FTDNA platform for the purpose of gathering migrant DNA to determine nationality (Kassam,2018).” The use of biological material to infer nationality raises serious concerns, especially given that “DNA is not related to immigration journey, ‘legality’, nationality’ and should not determine nor impact immigration / asylum application (Bircan and Korkmaz, 2021, 3).”

In this instance, border protection agencies demonstrated a lack of concern with issues of privacy or inaccurate outcomes from the use of such technologies. Additionally, the use of these technologies is a legal gray area, encouraging its use to make migrants “trackable and intelligible” along pre-existing hierarchies of mobility (Bircan and Korkmaz, 2021, 4). In this context, the public processes of immigration enforcement are intimately intertwined with statecraft, enforcing notions of nationality using biometric and DNA data. Agathangelou’s notion of the “Complicit State” highlights this relationship between statecraft and immigration, where she posits that the state constructs

immigrants as “foreigners”, simultaneously categorizing them as “desirable / undesirable” in accordance with prevailing interests and norms (Agathangelou,2004, 15). The legal sanctioning of difference through schemas of racialized, non-racialized, sex, and class-based systems formulates both the subject and the racialized non-subject (Agathangelou and Ahmed, 2020). Agathangelou’s notion of the complicit state, further evidenced how the states construct of desirable and undesirable immigrants, and the emerging technological expressions of sovereign grounds keeping, are not neutral (Agathangelou,2004). Instead, these are classed, gendered, and racialized in accordance with the colonial global order (Agathangelou, 2004).

For Thobani, the “control of migration – of immigration as well as emigration – is crucial to state sovereignty”, highlighting the limitations of the liberal rights-based model, where the sovereignty of the enfranchised citizen / subject directly implicates non-citizens (Thobani,2007,68-70). The entanglement of immigration with state sovereignty, the technopolitical mechanisms of borders, and the management of immigration through new technologies necessitates the construction of risk and enmity. These entanglements show that sovereign ordering necessitates and privileges some for “becoming subjects” whilst divesting others of political status (Mbembe,2003). The convergence of algorithmic or AI infused forms of governance with immigration processes “enacts and tracks race as a biopolitical assemblage (Vukov, 2016)”. Questions of race and racialization have become even more pronounced given the states attempt to preempt risk in the post-9/11 era (Vukov, 2016; Rouvroy, 2013). For Abu-Laban and Gabriel, Canadian immigration policy has always “both explicitly and implicitly been tied to a vision of who is an ideal or model Canadian citizen” (Abu- Laban and Gabriel,

2008, 37-40). It was only because of the needs of the labour market that the admission of the “non -ideal” (often racialized) immigrants took place (Abu- Laban and Gabriel, 2008, 37-40). While new and emerging technologies are adding to pre-existing layered program of immigrant surveillance and engagement by authority figures, they are also replicating the state through flows of data and information (Everuss, 2021). Digitization of borders offers states the opportunity to “extend the activity of border crossing beyond sites of entry and exit”, a process which is carried out by “actors across jurisdictions and within both government and private sectors (Everuss,2021,2).” This is furnished by previous examples of the increasing collaborations between Canadian governance agencies with private technology corporations. For Everuss,

...digitization is fracturing state boundaries and spreading bordering agencies across human – machine and machine – machine interactions. It is a process that involves, on the one hand, embedding state borders in virtual flows of information, and on the other hand, attaching them to the biometric coded bodies of travellers. (2021, 1)

The use of drones, motion sensing, and other technologies to monitor both sides of borders gives way to the “strategic shifting of state borders by governments seeking to increase their regions of influence” whilst simultaneously decreasing their areas of responsibilities, rights, and protections (Everuss, 2021, 6). Within this context, digitization extends state power in the form of both collection of a variety of data but also in creating digital zones of legal excision without regulation. This extension of state power to a digitized non-space is created to deter and capture digitized subjects, as well as those it deems non-subjects. The reliance on biometrics to make the personhood of migrant’s legible, renders migrant bodies into sites upon which the state inscribes power. The digitization of borders and border processes also “makes bodies codable and

subsequently turns them into signifiers of ‘acceptable’ and unacceptable mobility (Everuss,2021,7).” Exclusion from state boundaries happens long before migrants reach the point of entry. Everuss highlights this through the example of migrants in Europe, stating:

...for many migrants trying to reach Germany, the border they are seeking to cross spreads to meet them and begins to exclude them before they have reached Germany’s geographical edge as their bodily data is recorded in European databases used by Germany when they enter Greece. Thus ‘the body’, in effect, becomes the carrier of the border as it is inscribed with multiple encoded boundaries of access. (Everuss,2021, 7)

This creation of digital subjects, whose bodies signify and carry their mobility rights, highlights the convergence of statecraft with technologies of surveillance to carry out and inscribe subjectivities onto migrants. Canada also exercises similar means of exclusion through its international membership in the Five Eyes (FVEY). Comprised of Canada, Australia, the UK, the US, and New Zealand, FVEY is an intelligence alliance between these countries, through which they share information with each other to protect their shared or respective national interests. Canada is represented at these international forums by the Minister of Public Safety Canada and the Minister of Immigration, Refugees, and Citizenship Canada ([Publicsafety.gc.ca](https://publicsafety.gc.ca)).” This harmonization of data across and between diverse state boundaries, where migration and mobility control are ‘shared interests’ between Western states, signals the political dichotomies between the global North and global South. Harmonization of information within the West, as well as the concentration of knowledge of surveillance mechanisms here, ensures that subjects of the global South have differential access to and engagement by AI and other surveillance technologies.

In line with the concentration of AI knowledge production and investments in the global North, the colonial political terrain guides the flow and extent of globalization of AI and its iterations. In an otherwise globalized market, the flow of products could easily reach a diverse population. However, given the concentration of surveillance technologies, AI startups, and research in the global North, as well as the substantial monetary and material resources required to invent and innovate, the flow of data and exchange of benefits remains unidirectional. As displacement and migration trends show no sign of slowing down, tech corporations, telecommunication firms, and even mobile service providers have begun to invest in and produce services that target migrants and refugees (Bircan and Korkmaz,2021,3). Here commercialized and proprietary AI is supplied to UN agencies and other international NGO's alike, with corporations becoming "stakeholders, actively working with states and UN agencies to manage and control migratory movements (Bircan and Korkmaz,2021,3)". The proprietary nature of AI and the access to its formulations and functions have become trade secrets, making audits and other forms of accountability difficult to enforce. The uni-directional nature of data flows between states and corporations ensures that:

...neither migrants (as producers of this data) nor migration scholars (as scientific experts on the topic) are in a position to monitor or control how governments and corporations use such data (Bircan and Korkmaz,2021, 3).

Thus, there is minimal, if any opportunity for migrants or the public, for that matter to participate in the processing of their datafied selves. Moreover, digitized and smart border applications reinforce the loop of confirmation bias wherein companies that produce the weapons which generate displacement and refugees are also the same entities that develop and supply "surveillance tools to detect migrants approaching their borders

(Korkmaz, 2022)”. These processes illustrate how emerging AI technologies, and their use within, at, and outside borders works in tandem with political constructs of citizenship, enacting a reinforcing loop of difference that foundationally underpins the Western sovereign order.

CHAPTER 6: AI FUTURES

The interviews collected discussed overlapping concerns and thus presented four identifiable clusters for collective discussion in this chapter. The overarching themes include: 1) the unfounded concerns over ‘inorganic personas’ or fraudulent applications by border officials ; 2) the need for a policy ‘bridge’ between the tech field and policy makers ; 3) barriers to participation, inclusion, and safeguards for the rights of immigrants and refugees in relation to the concentration of AI’s power in the West ; and 4) the perceived benefits of AI in relation to public administration and process transparency.

In this chapter, I present the following: 1) content analysis of posters from the Canadian Veteran affairs campaign titled “Canada Remembers”, to illustrate the role nationalized science and technological innovation plays in statecraft ; 2) quantified participant responses generated from a survey of first and second generation immigrants to Canada to share their perspectives on the use of AI in immigration and its comparison with an IPSOS survey on the broader Canadian perspectives on AI ; and 3) a discussion of interview results to highlight the overarching qualitative concerns in relation to the deployment of AI in Canadian immigration and public services as shared by participants.

PUBLIC IMPRESSIONS OF AI

In the previous chapters I have shown how the relationship between Canadian national identity and technological innovation is deeply entangled and inseparable in terms of how the state exercises its power on the global scale and how it seeks to compete with allies and enemies alike. AI, like previous turns in innovation, has come to play a key role in the balance of international powers. AI has become pivotal in effecting “military

capabilities but also the extent to which states can project power both regionally and globally – in other words, how states can build and extend their spheres of influence (Bode,2024,68)”. Internally, scientific and technological advancements play a key role in the Canadian national memory, for example, the poster created by Veterans Affairs Canada’s Canada Remembers Program (**Figure 19**). The Canada Remembers Program of Veterans Affairs Canada is centered on the remembrance of “sacrifices and achievements made by those who served and continue to service during times of war and peace ([Veterans.gc.ca](https://veterans.gc.ca)).” Here, remembrance activities with foci on technological and scientific innovations “will help to preserve” the Canadian and veterans legacies, and inform Canadian identity ([Veterans.gc.ca](https://veterans.gc.ca)). The program highlights how the “deep interconnections between the tech sector and the military are now framed within a strong nationalist agenda (Crawford,2021,222).” Banal assertions of Canada’s or Canadian scientists’ contributions in shaping the modern world are further emphasized as follows,

Much of the research [from World War II] found civilian uses after the war and has helped shape today's modern world. Whenever you heat food in a microwave oven or use washer fluid to clear off a car windshield, to name just two examples, you can credit the groundbreaking work done by Canadian scientists during the Second World War. ([Veterans.gc.ca](https://veterans.gc.ca))

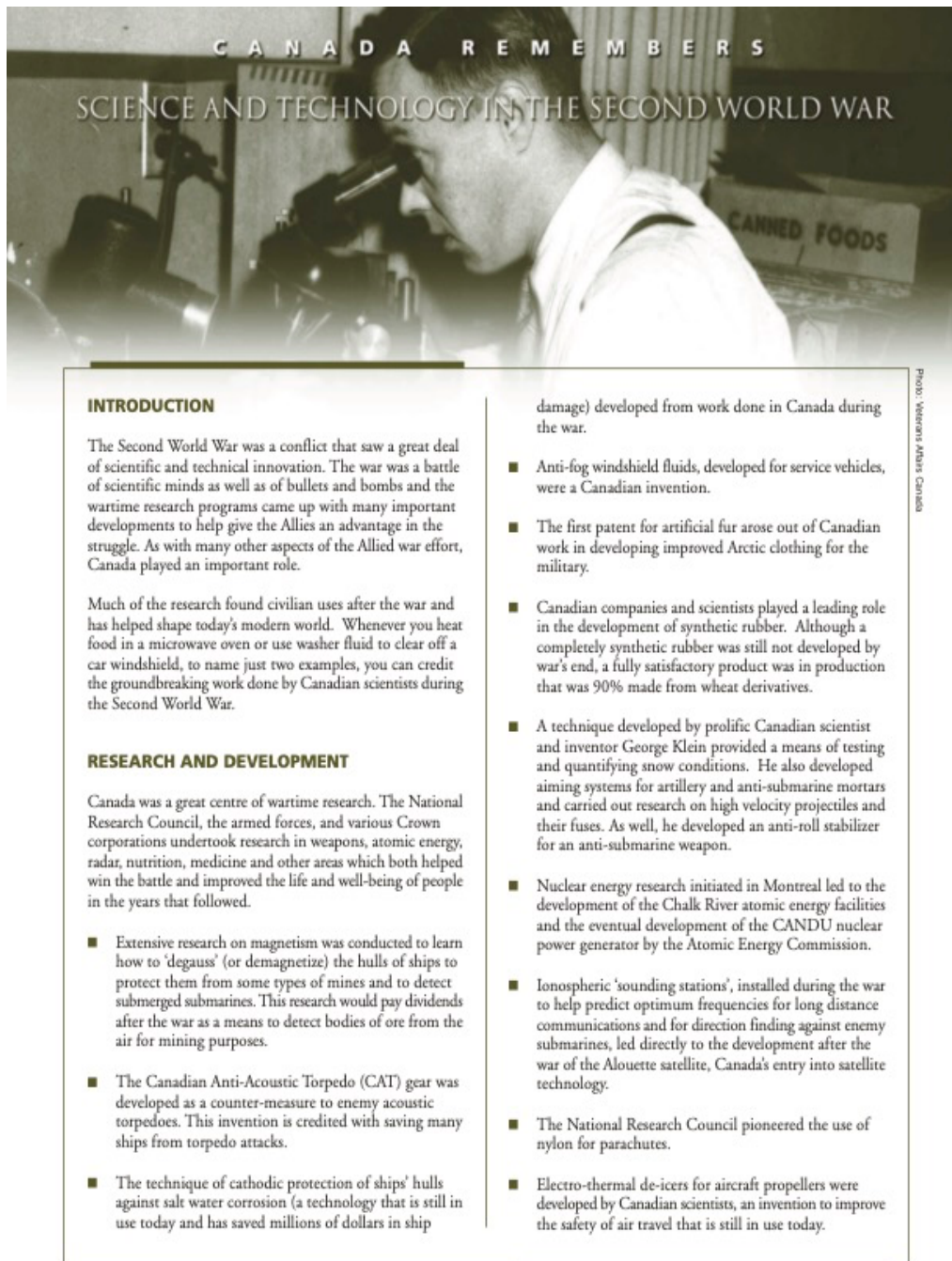


Figure 19. Canada Remembers Science and Technology in the Second World War Poster Source: [Veterans.gc.ca](https://www.veterans.gc.ca). (2024)

However, the Canadian public sentiments seem to differ from the federal government's aspirations and imperatives, both historically and in the contemporary AI era. The

Canadian postwar era has a robust history of anti- nuclear and anti-arms race protests, examples of which are shared through photographs from the Clara Thomas Archives & Special Collections / Toronto Telegram Fonds (**Figure 20**):



Figure 20. *Image of Ban the Bomb Protest Crowd in a Toronto Street.* Dated: October 1st, 1963, Photographer Frank Grant, Courtesy of York University Library; Permalink : <https://hdl.handle.net/20.500.14491/06376f63-eb91-4aba-b2c4-0124fff96f6b>

In the contemporary era, public sentiment mirrors that of the 1960's to 1980's which found government spending on nuclear arms and participation in arms race as disconnected from the interests of social well-fare and well-being. This includes the Canadian Voice of Women for Peace (VOW) a feminist nonprofit collective formed in 1960, who opposed war, violence, and were one of the leading voices promoting nuclear disarmament (Bruin and Macpherson, 2006). In an Ipsos survey (2022) conducted for the World Economic Forum, Canadians were found to be the “least likely to believe

Artificial Intelligence will make their lives better ([Ipsos,2022](#)).” The survey compared responses from 27 countries and found that Canadians “are less likely to say they are knowledgeable about various aspects of artificial intelligence and how will it affect their lives in the near future (Ipsos, 2022)”. Within the context of familiarity and trust in AI and its applications, Canada again, scored behind the global average in relation to positivity towards AI products and services ([Ipsos Press Release, 2022](#)). However, Canada scored above the global average in its skepticism towards AI, where “half (49%) agree that products and services that use AI make them nervous (+10 vs. global average) ([Ipsos Press Release, 2022](#))”. The Ipsos survey also showed that “men, younger Canadians, and those with higher formal education” tended to “be more knowledgeable and positive towards AI”, affirming the previously mentioned digital literacy gaps, and adding a gendered divide to it ([Ipsos,2022](#)). For this dissertation, an anonymized survey was conducted with 30 participants, comprised of either 1st or 2nd generation immigrants to Canada, who had no subject matter expertise on AI, to capture the sentiment of publics excluded from AI policy and implementation. The findings are shared below:

SURVEY RESPONSES

Q1) Are you familiar with artificial intelligence? How it makes and reaches decisions.

Responses: 8 yes / 22 no

Q2) Did you know artificial intelligence is now being used to process immigration files?

Responses: 3 yes / 27 no

Q3) Do you think artificial intelligence applications are trustworthy?

Responses: 12 yes / 18 no

Q4) Do you think these technologies are divorced from social and political attitudes on or around immigration?

Responses: 12 yes / 18 no

Q5) Do you feel that the personal social media data should be used in immigration decision making?

Responses: 3 yes / 27 no

Q6) Which do you feel is most important in relation to the above?

- a) Legal regulation of artificial intelligence /technologies that use them (5)
- b) Public awareness about these new processes and technologies (8)
- c) Protection of personal data (4)
- d) Re-thinking the use of these technologies in such fields altogether (3)
- e) Strong ethical guidelines to avoid discriminatory or harmful outcomes (10)

CANADIAN PUBLIC SENTIMENT ON AI

Survey findings were similar (if not more pronounced in certain areas) to that of the IPSOS poll. Questions 1 and 2 were aimed at gaining insight into awareness of AI's functions and its use in immigration services. Responses showed that over 70 %³ of the respondents were not familiar with how AI reached decisions, while 90% were unaware that AI was being used in immigration processes. The survey was conducted (intentionally) to understand the impressions of non-experts, and responses showed little awareness regarding the use of AI, whereas the IPSOS poll found a concentration of AI knowledge in young men and those with higher education. Responses for Questions 3 and 4 reflected the trustworthiness of AI and whether AI was perceived as divorced from social and political attitudes towards immigrants. 60% of respondents did not view AI applications as trustworthy and 60% of respondents also did not believe that AI was

³ All percentage values calculated were rounded to the nearest 10th for clarity of data presentation.

shielded from social and political attitudes towards immigrants. However, it is important to note, that despite 70% of respondent's being unaware of how AI reached decisions, 40% of participants still found AI trustworthy and immune to social and political biases towards immigrants demonstrating the trust in new or emerging technologies whether we are fully aware of its functions. There is an assumption that innovation is and will be undertaken responsibly.

Respondents overwhelmingly agreed (90%) that data from social media should not be used to make immigration decisions. Lastly, when asked which aspect of AI regulation was most important to them, the results were mixed: 33% showed strong preference for guidelines that would deter harmful or discriminatory outcomes, 27% requested more public awareness and information about the use of AI and other such technologies, 17% for legal regulations, 13% for the protection of personal data, and 10% for rethinking the use of AI in such sectors altogether. While the survey provides valuable insights into the sentiment and awareness surrounding the use of AI in the public sphere, findings should be interpreted with consideration for the small and localized sample size. The intention of the anonymized survey was to capture the impressions of lay Canadians, specifically those who have experienced immigration. The survey findings indicate the strong need for public awareness and transparency regarding how, when, and where AI is being used. The mixed responses regarding aspects of AI regulation illustrate that, while public awareness was most important to respondents, each aspect was still engaged as important by at least 3-4 respondents, showing that regulation must account for multiple factors and be multi-sectoral (i.e. privacy, legal, social awareness). The gaps between public awareness and subject matter experts are

concerning, as it points to the social stratification of knowledge along lines of class, digital literacy, and immigration background.

DISCUSSION OF INTERVIEW RESULTS BY FIELD CLUSTER

Law (Immigration) 1	Tech Field 2	Immigration 3	Subject Matter Expert 4
Maximus	Chris	Nicola	Abby
Paulina	Angelina	Sabrina	Gus
Hiba	Alex	Swati	Trina
Wasim	Thomas	Sophie	Ash
	Damien	Pierre	

Table 2. *Interview Participants Cluster.*

*Names of all participants have been changed to protect their input and privacy

AI AND PROCEDURAL FAIRNESS

This cluster consisted of participants engaged in the field of immigration law, i.e., as counsel for immigrants and refugees, caseworkers, or settlement work. This cluster's overlapping concerns were regarding the impact of AI on 1) case provenance, 2) class action law, 3) procedural fairness, and 4) the need for disclosure of the use of AI in the approval or denial of an application. Each of the 4 participants in this cluster shared their fears that immigrants, especially refugees, are faced with increasing pressure to prove themselves through digital means. For Hiba, case provenance and the submission of evidence is most at stake. She asked:

How do we present a client or a file to AI? How do we ensure that our clients are understood [in all their complexities] through their data? In my field I am collecting facts and events and organizing them to prove this person is worthy and in need of protection...and its systemic and strategic. We use our experience and case precedence to help us navigate an application but also prepare our client for possible outcomes...but with AI... because many of us don't know how it is being used or how it assesses clients, that creates this huge gap between the system and clients...

Hiba's emphasis on making her clients legible in a way that proves their 'worth' and admissibility illustrates the larger project of digital subject formation and the processes through which immigrants come to embody digital border technologies (Everus,2021,13). In this way digital technologies used in immigration processes that are

...embodied at the borders are less freely engaged with than consumer electronics and social media, and more forced upon the bodies of travellers, whether that be through persuasion, coercion or clandestine action. Biometric systems, for instance, are experienced and incorporated into bodies when they force individuals to move and behave in certain ways, such as when e-gates make travellers stand still in specific locations, take off their glasses and form neutral facial expressions in order to be properly captured and coded. (Everuss, 2021, 13)

The digitization of mobility and borders is also recasting personhood in relation to their data points, ensuring specific forms of data captures are performed by humans and machines alike. These processes illustrate the "shifting of bordering responsibilities onto travellers" where they are expected to "contribute to the production of the thing or service that they are consuming (Everuss,2021, 13-14)". The production of a digital subject, or as Everuss (2021) termed it, "digital doubles", is informed by "ideal virtual profiles or identities" where the flows of biometric data are used to connect or compare people to their social identities outside of borders (2021,7). The most concerning aspect regarding the development of data doubles is that "systems of bordering and surveillance, which use big data based on biometrics of populations to establish normality, inherently target minorities (Everuss,2021,8)". The encoding of social categories of difference and their mobilization results in minorities becoming "prisoners of data double associations and virtual anticipations (Bigo,2014 via Everus,2021,8)".

Given these processes, Hiba's concern that she may not always be able to prepare a client in a way that is legible or readable to AI programs is well-founded, as the burden

to perform one's identity (already complicated by a long list of factors) is now further pronounced for immigrants.

For Paulina, legal regulation is of utmost importance and urgency in the contemporary AI moment. Rather than leaning into ethics conversations, she would “like to see an algorithmic charter like the one they have in New Zealand”. The charter is part of a larger network of policies, tools, and programs which seeks to demonstrate transparency and accountability in the use of data. However, it cannot fully address other important considerations, such as Māori Data Sovereignty, as these are complex and require separate consideration ([NZ Government, 2023](#)). The Algorithm Charter for Aotearoa New Zealand commitments are listed as follows: Transparency by ensuring documentation in English and processes are explained in an accessible manner; embedding a Te Ao Māori perspectives into the use of algorithms consistent with the principles of the Treaty of Waitangi; consulting impacted peoples and communities; understanding and mitigating the risks and biases within data; regular peer review to ensure respect for privacy and human rights, as well as consistent human oversight, clearly illustrating the roles of humans in technologically-driven decision making processes ([NZ Government, 2023](#)). For Paulina, the Algorithm Charter's commitments provide a well-rounded model for democratizing and making transparent governmental uses of AI. She emphasized that the publication of data collection methods and processes being deployed by AI would help facilitate her role as counsel for immigrants and refugees. In other words, procedural fairness requires knowledge by all parties (government, counsel, and client). The charter offers meaningful opportunities for engagement by ensuring there is a public facing point of contact for complaints and

inquiries regarding the government's use of AI, alongside human oversight over algorithmic decision making. While not mentioned by the participants, the partnership with the Te Ao Maori (with respect to the Treaty of Waitangi) is important to note, especially in relation to Canadian issues surrounding Indigenous data collection and sovereignty. At the time of this study, there was no record found of Indigenous-specific engagement carried out in the creation of the Artificial Intelligence and Data Act (AIDA), part of Canada's Digital Charter. Paulina emphasized the need for procedural or legal pressure on government uses of AI in immigration processes, where representation is not hindered, and disclosure of information is not barred in relation to proprietary or commercial trade secrets.

Conversations surrounding procedural fairness continued with Wasim, whose primary concern was the delay in declaring how and when AI or other technological aids were being used in immigration processes. For Wasim, testing or piloting should be made public to Canadian immigration lawyers as it not only impacts the clients but the legal profession at large. Here, "active notices for changes forthcoming" would allow clients and their counsel time to better prepare themselves as part of procedural fairness. For Wasim, it is "unfair and unreasonable to not give applicants and their counsel enough time to make their best case". The broader concern with how AI will impact the legal field are also echoed in the literature, stating:

While some legal jobs will be redundant, lawyers will also gain from AI, because a host of legal traps lie in wait. If something goes wrong who should be responsible: programmer, wholesaler, retailer, or user? And might a human professional sometimes be sued for *not* using an AI system? If the system had been shown (whether mathematically or empirically) to be highly reliable, such litigation would be very likely. (Boden,2018,142)

Wasim's concerns about disclosure, which is the exchange of documents between all parties involved, and the hindrances that AI posed to disclosure processes, mirrored Paulina's. In relation to immigration, this poses significant challenges to identifying accountability in terms of where the decision went wrong, and as Boden (2018) pointed out, it is unclear who would be responsible should an issue arise. While most of the interviewees were critical of AI, Maximus suggested that AI may be beneficial to immigrants and their legal counsel, stating:

I think there's incredible positives [to AI] I think it can give people access to their files, so they don't have to use access requests. They can know what's going on, there can be a more transparent exchange with the department, it could better triage files if properly done, it could expedite processing, it can prioritize areas that need to be prioritized, it can be more nimble... just all of the above. It's just amazing, but again you have to structure it that way, because you know the thing about AI right now [is that] the department saying look it's all manual review... there's no decision making being done here, in almost like 'nothing to see nothing to worry about' but we know that with neural thinking that AI can come up with its own conclusions and some of those conclusions are incredibly profound and some of them would be the equivalent of a 3 year old right? It is all over the place!

All participants in this cluster referred to the administrative benefits of AI, either passively or actively like Maximus, above. However, as Maximus points out, there is an ongoing risk-benefit analysis in relation to some aspects of AI being "incredibly profound" with others being erroneous or unsophisticated in its conclusions. Participants in this cluster all came to similar conclusions during the interview: because AI is here to stay, a balance between risks and benefits must be struck in its applications. With transparency about the opportunities and challenges regarding the usage of AI in immigration being vital to its implementation.

THE PRIVATE TECH SECTOR AND PUBLIC FACING AI

Participants in this field cluster are primarily those with formal education in computer science, software development, and AI. These participants called for more interdisciplinary bridging in public and private partnerships regarding AI design. They also emphasized the need for in-house design of AI governmental applications and proposed more opportunities to get involved in the development of public facing AI rather than the sole focus on private sector internships and employment. For Alex, the larger market attitudes around innovation and the opportunities it produces are also important in relation to developing beneficial AI models for the public. He states:

Think of it like this, who wouldn't want to cure terminal illnesses? Who wouldn't want to invent the next big thing that actually helps people, or gets people out of poverty? But the emphasis is mostly on being the next [Steve] Jobs, developing the next cool or must have item, not on apps that can make navigating tax returns or the EI [employment insurance] process easier....If there were more opportunities for graduates to get involved in roles like this, I think a lot of people would steer that way, especially younger graduates who want more opportunities to make a difference with their skills.

While the focus here is specifically on the markets of AI innovation and the roles they produce, it also speaks to the broader issues of exclusionary pedagogy within the AI educational and training realm. Raji et.al., (2021) speak to the “lack of ethical consideration in the Artificial Intelligence (AI) field”, citing that the reliance on

...exclusionary pedagogy, where ethics is distilled for computational approaches, but there is no deeper epistemological engagement with other ways of knowing that would benefit ethical thinking or an acknowledgement of the limitations of uni – vocal computational thinking. This results in indifference, devaluation, and a lack of mutual support between CS and humanistic social science (HSS), elevating the myth of technologists as “ethical unicorns” that can do it all, though their disciplinary tools are limited. (2021, 515)

Such pedagogical tradition informs the training, design, and deployment of AI technologies. This issue is not concentrated to the computer science field but attributed to

strong disciplinarian boundaries drawn within academia itself, where research and knowledge production flows independent of other disciplines despite important intersections between them. The authors further highlight how disciplinary classifications present certain disciplines, specifically the natural and computational sciences, as “sure, robust, and legitimate” with social sciences “classified as irreversibly soft” and therefore “vague, unwarranted, and superfluous (Raji.et.al,2021,521).” These perspectives further entrench disciplinary biases and hierarchize knowledge, and in the case of AI and its markets, such disciplinary biases and divides result in AI becoming an isolated and untouchable mode of reasoning and innovating. Alex’s emphasis on students wanting to become the “next [Steve] Jobs” shows how the nature of market AI and developing proprietary AI has ensured that public-facing research and AI are less regarded than private-sector developments. All participants noted that their roles, especially when dealing with data or programming, often feels faraway from politics and the news. Meredith Broussard’s seminal work “Artificial Unintelligence” discusses this type of distancing faced by data scientists stating,

Working with columns of numbers feels value – neutral and occasionally tedious. There’s a certain amount of dehumanization that occurs when you deal only with numbers. It’s not easy to remember that each row in a dataset represents a real person with hopes, dreams, a family and a history. (Broussard,2019,109)

The distancing experienced by those employed in the tech sector is part of a larger concern with quantitative approaches and, as Raji et.al posited, signals the need for the formation of collaborative pedagogies that account for how “...CS technical artifacts have a global impact on our lives...”, requiring interdisciplinary collaboration and recognition, and to “...work with affected populations and experiential experts...(2021, 523)”. In relation to this study, collaboration and recognition translates to bridging the

public and private divide that currently separates the roles, responsibilities, and goals of both the tech sector and policy makers. The emphasis on in house production of AI for government use was also mentioned by participants to mitigate harmful outcomes, with Chris stating,

...as someone who actually enjoys cooking...I know best how to design my own kitchen...to make sure the workflow makes sense. Where you prepare, where the sink is, where the island is, where the stove and fridge should be, so I don't know how much of this is done in house, but I think it would benefit them [policy makers or governments] to do it themselves.

The tech experts group generally agreed that subject matter expertise could deter harmful outcomes and encouraged the IRCC to have inhouse AI. However, this line of thinking does reinforce the separation between the two sectors in relation to public and social responsibility. It also fails to account for the limitations of algorithmic design, and how these limitations contribute to “meaning making” in relation to bias outcomes and reinforcement (Baumer, 2017, 10). Nor does it consider that the disciplinary training of CS, AI, and Social Humanities does not dissipate simply by a change in the sphere of employment. The gaps in their respective trainings, and the lack of cross disciplinary engagement remains should these disciplines continue to operate outside each other.

IMMIGRATION AND DIGITAL LITERACY

Participants in this field are associated with the field of immigration (i.e., settlement work, immigration clinics, and community services) and had concerns regarding digital literacy gaps, access, language barriers, and the lack of informed consent within immigration processes. Nicola, Pierre, and Swati each mentioned language barriers as a sustained worry and central consideration to their field of work. In attempting to address

these gaps, there are mounting frustrations surrounding the availability of translators, and making the refuge-seeking process easier. Pierre shared:

The Canadian applications for refugee status have now become online.... This posed a serious barrier to applicants. Cutting out the middleman and making it online also means that there isn't a service provider to advise or translate if needed...putting it straight online expects people in crisis or war zones to have reliable internet status...which goes against the very idea of what a humanitarian application should be...accessible and easy.

For Swati, the issue was also about “immigrants and the legalese they face”, adding to the layered complexity of immigration and refugee processes. Pierre’s concerns with paperless applications also highlights the widening gaps between singular Western views of innovation and how they impact those outside its fold. In 2016, the United Nations amended Article 19 of the Human Rights Declaration to “declare that it considers the internet to be a human right (Howell and West, 2016)”. The amendment, though made to address countries seeking to impose internet shutdowns, illustrates the disconnect between the material reality of communities most in need of such protections and the West’s virtue signaling or advancement through inclusion of the internet within its doctrines. In the same vein, as the IRCC moved towards making applications paperless, the organization did not account for the material conditions of those seeking refuge, for instance the gaps in technical knowledge and access to computers. The second concern shared by all participants is that of informed consent. Each interviewee expressed that applicants feel as though they have limited agency at borders, challenging their willingness or ability to deny problematic requests from border officials, or refuse to answer concerning questions. For Sophie, the pressure to be “actively forthcoming with information, [that is] accurate, and completely transparent and truthful” are not mutual, but rest squarely on the applicant. In relation to consent in the era of digital borders,

...migrants and refugees often find themselves providing ‘informed consent’ to primary data collection even though they often have insufficient understanding of the implications or potential threats. Visa and asylum applications and getting access to aid at refugee shelters where biometric information is requested are examples of such ‘consent’. Moreover, migrants and refugees may find themselves at the whim of politics through mechanisms like ‘function creep’, where the use of technology and information extends beyond the stated initial purpose. (Bircan and Korkmaz, 2021, 3)

The issue is not simply about consenting to process their files, but also one of understanding the substantial involvement of corporations within public spheres, and how covert their involvement often remains. Indeed, simply provisioning software to border authorities enables them to discreetly access a myriad of personal data. This also raises concerns of technological failures, electrical outages, and cyber-attacks that make migratory and refugee data, its collection, and use for decision making disproportionately harmful for immigrants and refugees.

SURVEILLANCE AND DISCRIMINATION

This cluster consists of experts within the fields of immigration, refugee settlement, and human rights. The overlapping concerns within this group are discrimination (e.g., classism and racism); surveillance and privacy; and re-entrenching social categories of difference. For Abby, mass surveillance is an issue of discriminatory practices that are part and parcel of immigration regimes. She shared:

“The post 9/11 narrative has always been “we need more surveillance” we need to find these people out. But what we need is progressive change to our programs to match the growing need of migrants, we don’t have proper programs in place, we don’t have enough officers to meet the evolving needs of applicants and refugees....the turn to mega - surveillance expects perfection out of people... but what about people who have gone through trauma ...[they] may not remember everything, may not have every document and we have nothing really that accounts for these issues that fundamentally gate keeps their access to safety.”

In relation to the discriminatory practices that undergird the immigration regimes and technosolutionism, she stated,

“We know what the problem is, the problem is the “unwanted of the world”, people we do not see as people. New technologies probably make it easier and quicker to absorb the upper middle class of the world, or I guess business class immigrants”.

For Ash, the emergence of AI in the field of immigration is attached to issues of labour shortages and the cost-cutting of government spending. He lamented, “streamlining used to mean we need more people or better processes ...not we need robots to do this instead...”. Similarly, Trina added that AI is not the solution that the immigration field hoped it to be, stating “we need an overhaul of the current system because wait times are ridiculous...not more ambiguity and complexity [added in] to the mix”. For this cluster in particular, the move to automation and offloading onto technological methods was simply “confusing” and not in line with the current needs of immigration processes. For Gus, the need for more surveillance methods was confounding as

it’s pretty easy to weed out an inorganic or fake persona now...I don’t know if Canada is actively using social media to authenticate people but with the resources available to them [officers], it is not difficult to find a person out...

However, the need to modernize and use increasingly sophisticated methods of surveillance and authentication speaks to the rise in surveillance capitalism and its entanglements with a globalized racial capitalism. In line with the urgent need to modernize, in 2024 the CBSA published a video “Introducing the Traveller Modernization initiative”. The video offers a “glimpse into the border of the future” ([CBSA Video Link. 2024](#)). Below are the narrative excerpts from the promotional video’s transcript:

“Narrator: Our world has changed and continues to evolve. The Canada Border Services Agency is modernizing the border.

Narrator: We want to offer you a smoother and faster experience...

Narrator: ... where you can complete your customs and immigration declaration in advance using Advance Declaration on your smart phone or a computer.... where technology will quickly verify and confirm your identity and expedite your entry, while keeping your personal information secure.

Narrator: These tools will help officers keep borders secure while reducing wait times. ... and our border officers will still be there to guide you every step of the way.

Narrator: This is your border experience, reimagined: safer, faster, better. We are working towards the border of the future. (Video Transcript, Introducing the Traveller Modernization Initiative, 2024)”

The second set of dialogue (marked with blue brackets) makes technology (smartphones and computers) central to its operations, and therefore central to the expedience of traveller mobility. Modernization schemas such as the CBSA’s show how the digital self has become intertwined with mobility in a way that illustrates the aforementioned ‘embodiment of data’. This emphasis on technology as central to the betterment of border processing does not align with the concerns shared by participants. It is important to note how the core issue of long ‘wait times’ mentioned continuously in the literature and by participants, naturally translated into digitization of processes and not hiring more officers, or perhaps a review of current systems to address pain points. However, an excerpt from Computer Scientist and AI pioneer Joseph Weinbaum’s interview in 1985 sheds light on the ways in which technological innovation often hinders social innovation (Figure 21).

Weizenbaum examines computers and society

Interview

By Diana ben-Aaron

Professor Joseph Weizenbaum is well-known both as a teacher of computer science and as an activist for scientific and educational responsibility. He designed the first computerized banking system before coming to MIT in the 1960s. He invented ELIZA, the first "psychiatrist" program, and was moved by the reaction to it to write the best-selling *Computer Power and Human Reason*.

Q: What, if anything, do you think should be the role of the computer in education?

A: Yours is an often-asked question. In a sense, it is upside-down. You start with the instrument; the question makes the assumption that of course the computer is good for something in education, that it is the solution to some educational problem. Specifically, [your] question is, what is it good for?

But where does the underlying assumption come from? Why are we talking about computers? There is something about the computer — the computer has almost since its beginning been basically a solution looking for a problem.

The questioning should start the other way — it should perhaps start with the question of what education is supposed to accomplish in the first place. And once one has identified the urgent problems, then one can perhaps say, "Here is a problem for which the computer seems to be well-suited." I think that's the way it has to begin.

Q: What are the problems of the educational establishment?

A: The first priority has to be, it seems to me, to lend to those to be educated a mastery of their own language so that they can express themselves clearly and with precision.

doing something about it, we are helping," than to confront ugly social realities.

Q: Do you think that the computer is creating a technical elite, reinforcing old power structures, or remaking American society?

A: I think the computer has from the beginning been a fundamentally conservative force. It has made possible the saving of institutions pretty much as they were, which otherwise might have had to be changed. For example, banking. Superficially, it looks as if banking has been revolutionized by the computer. But only very superficially. Consider that, say 20, 25 years ago, the banks were faced with the fact that the population was growing at a very rapid rate, many more checks would be written than before, and so on. Their response was to bring in the computer. By the way, I helped design the first computer banking system in the United States, for the Bank of America 25 years ago.

Now if it had not been for the computer, if the computer had not been invented, what would the banks have had to do? They might have had to decentralize, or they might have had to regionalize in some way. In other words, it might have been necessary to introduce a social invention, as opposed to the technical invention.

What the coming of the computer did, "just in time," was to make it unnecessary to create social inventions, to change the system in any way. So in that sense, the computer has acted as fundamentally a conservative force, a force which kept power or even solidified power where it already existed.

Q: Did you have these concerns when you were designing the banking system?

A: Not in the slightest. It was a very technical job, it was a very hard job, there were a number of very, very difficult problems. It was a whole of a lot of fun attacking those hard problems, and it never occurred to me at the time

ization is profoundly false. It is not true that science marches on in defiance of human will, independent of human will, that just is not the case. But it is comfortable, as I said; it leads to the position that "if I don't do it, someone else will."

Of course if one takes that as an ethical principle then obviously it can serve as a license to do anything at all. "People will be murdered; if I don't do it, someone else will." "Women will be raped; if I don't do it, someone else will." That is just a license for violence.

Other people say, and I think this is a widely used rationalization, that fundamentally the tools we work on are "mere" tools; the technology itself is neutral and value-free and it just depends how one uses it. And besides — consistent with that — we can't know, we scientists cannot know how it is going to be used. So therefore we have no responsibility.

Well, that is false. It is true that a computer, for example, can be used for good or evil. It is true that a helicopter can be used as a gunship and it can also be used to rescue people from a mountain pass. And if the question arises of how a specific device is going to be used, in what I call an abstract ideal society, then one might very well say one cannot know.

But we live in a concrete society, [and] in this society, it is perfectly obvious that when something like a computer is invented, then it is going to be adopted will be for military purposes. It follows from the concrete realities in which we live, it does not follow from pure logic.

If you look at the enormous fruits of human genius that mankind has developed in the last 50 years, atomic energy and rocketry and flying to the moon and coherent light, it turns out that every one of these triumphs is used primarily in military terms. So it is not reasonable for a scientist or technologist to insist that he or she does not know — or cannot know — how it is going to be used.

Figure 21. *Weizenbaum Examines Computers and Society*, Source: MIT's The Tech News Magazine, April 1985. Interview conducted by: Dianna ben – Aaron

The highlighted quote reads,

I think the computer has from the beginning been a fundamentally conservative force. It has made possible the saving of institutions pretty much as they were, which otherwise might have had to change. For example, banking. Superficially, it looks as if banking has been revolutionized by the computer. But only very superficially. Consider that, say 20, 25 years ago, the banks were faced with the fact that the population was growing at a very rapid rate, many more checks would be written than before, and so on. Their response was to bring in the computer. By the way, I helped design the first computer banking system in the United States, for the Bank of America 25 years ago.

Now if it had not been for the computer, if the computer has not been invented, what would the banks have had to do? They have might have had to decentralize, or they might have had to regionalize in some way. In other words, it might have been necessary to introduce a social invention, as opposed to a technical invention.

What the coming of the computer did, "just in time", was to make it unnecessary to create social inventions, to change the system in any way. So, in that sense, the computer has acted as fundamentally a conservative force, a force which kept power or even solidified power where it already existed. (Weizenbaum, 1985 via The Tech News)

As such innovation continues to move along the same current. The turn to technological solutionism and modernization schemas are segmented in the consolidation of current methods, power, policies, and systems rather than striving to revise them. Rather than investigating the foundational cause for the ongoing backlog, administrative delays in immigration, and the politics which generate displacement and immigration, the turn towards digitally mediated interdiction and AI based surveillance and processing is touted as the solution. Interview participants and the literature at hand, are not invoking fear of AI or new technologies, but are advising caution towards the automation of inequalitarian social relations which foundationally inform the design and deployment of AI. The critical approaches and concerns are fundamentally about how AI will re-entrench power in ways that have and continue to marginalize communities, widen the gaps of inequality, and mobilize the growth of inequities once thought to be byproducts of geopolitics alone. Without social innovation and inclusive programming Canada's AI futures, specifically in its immigration sector, will remain committed to the gendered and racial logics of statecraft highlighted throughout this dissertation. The expansion of private sector AI into public governance apparatuses under the promise of efficiency will continue to operate along the colonial axis of exclusion, peeling away at the goals of equal access and further entrenching differential mobility regimes. The intersectional analytic of this dissertation highlighted how AI is not simply a program or software outsourced by the Canadian public sector, but instead a program of convergence between the public and private sectors, blurring accountability, representing Canada's longstanding tradition of privileging the private sector in its innovation programs and prioritizing private sector values. As Canada continues to further invest in and expand its

AI ventures to project leadership in the AI markets and globalized race, the goals of transcending human limitations will consistently remain unmet, as such goals cannot come to fruition without first interrogating the underlying hierarchies and unevenness underpinning their foundations.

CHAPTER 7: CONCLUSION

This dissertation makes an original contribution to the broader literature on AI and society. This study makes an original contribution to the discipline of Canadian Political Science through its qualitative study of the integration of AI in Canadian immigration systems and its effects on immigrating populations and refugees. This study explored the introduction of AI in immigration processing and programs in the Canadian immigration and border regimes. It has demonstrated how the use of AI within the fields of immigration, and immigration management engender and advance the aims of a racial sovereign order reliant on the construct of a perennial enemy both within and outside the state boundaries. Historically, Canada has relied on and operationalized a differential immigration schema, as evidenced through its differential reception of racialized immigrants historically and in its contemporary reception of Syrian, Ukrainian and Afghani refugees. In the contemporary AI era, Canada's deployment of AI in the immigration sector enacts the same logics by encouraging the immigration of some and excluding its constructed *others* under the guise of border programs. Through the national strategy of AI, beset in competition and techno-enmity, the Canadian state generates certain dictions of knowledge about the *other*. In integrating AI and digital models of processing and interdiction, Canada further entrenches racialized and gendered logics of the desirable subject vs the undesirable non subject, these are evidenced through immigration streams facilitating the exploitation of racialized immigration through temporary labour programs, and by evading the hierarchized and complex ways that immigrants and refugees must now seek immigration status.

This dissertation made an original contribution through the conception of techno-enmity which drew on Mbembe's (2003; 2019) notion of sovereignty. Techno-enmity operates on and is foundationally undergirded by coloniality, this conceptual framework shows how the use of AI further entrenches and reaffirms the permanence of spatial and territorial arrangements that remain outside the state's fold and protections. By interviewing participants engaged in the fields of immigration law, immigration and refugee settlement, and those engaged in the conception, design, and development of AI applications, this study captured the divergent and disconnected policy gaps between state programs of AI integration and the social realities of communities on the end of technological engagement. The survey of first- and second-generation immigrants to Canada and their perspectives on AI's use in immigration processing, demonstrated how the redirection of resources to the expansion and integration of digital solutions maintains the social reproduction socially stratified technological knowledge (which remains stratified along the lines of race, gender, citizenship status, and class). The use of AI in immigration processes employs enmity to make distinctions between who is the acceptable or valuable immigrant and who is not, as furnished through the exclusion of large numbers of immigrants and labour migrants who are resolutely kept outside the promise of citizenship.

By focusing specifically on the introduction of AI technologies between 2014 and 2024, this dissertation challenged the image of Canadian humanitarianism (as furthered under the government of Justin Trudeau) and highlights how Canada engages in the process of a racial statecraft through its sorting of immigrants, through interdiction practices and more recently through technological border and immigration processes.

Contemporary operations are linked to a longer history of racialized subject formation and state making which relies on racial exclusion and differential inclusion of immigrants (Matas, 1985; Abu – Laban et.al, 2022). Colonial spatial relations and global ordering form and inform AI’s integration into governance spheres and its engagement in statecraft. This convergence between private sector AI with public governance operationalizes preexisting racialized and gendered notions of citizenship and subjectivity, shaping the national subject and Canadian vanguard. In analyzing Canada’s national Science Policy, this dissertation showed how national science and technology policy is a powerful tool and force, which is deeply intertwined with the politics of immigration, as it seeks to advance its markets through international talent whilst maintaining differential immigration streams impacting those within Canada and abroad. Despite Canada’s reputation as a humanitarian and internally diverse state, the Canadian immigration system remains the site of differential settlement, engagement, and acceptance of immigrants since its inception as a settler colonial state. The empirical data and analysis presented in this dissertation demonstrate how the logics of coloniality continue to operate and underwrite the promise of technological integration which guides contemporary debates of AI in Canada.

Throughout this dissertation, I have demonstrated how AI is shaped by existing social categories of difference, often segmenting and further mobilizing them to make decisions. Both the “glaring omissions of programmed knowledge” and the overrepresentation of marginalized communities in carceral data sets ensures that AI carries forward the existing social stratification of communities by race, gender, and citizenship status (Garcia, 2017). AI provides a means of social and moral distancing

between the global North and South as well the first and third worlds constructed within Western states. The emphasis on AI's militaristic capabilities that are foundational to the expansion of the military enterprise also illustrated how these technologies are shaped by geopolitical inequalities and hierarchies that sustain the power and sovereignty of the global North. An overview of Canada's historical technological and scientific programs illustrated Jasanoff's notion that "science and technology operate, in short, as political agents (Jasanoff, 2004, 14)". Canada's establishment of the first national AI strategy, its investments in AI research, industry collaborations, and its military having its own AI strategy depicts the key role emerging technologies play in consolidating state power on the global scale. Canada's investments in AI and ongoing posturing of leadership in the field (as demonstrated by former Prime Minister Trudeau's numerous speeches on AI leadership) show the need for Canada to be recognized as a leader in AI, and for other states to become aware of the innovations made by Canada in contemporary AI era. A review of the strategy and documents from the DND / CAF show that the AI strategy represents a means to match the capabilities of allies and 'enemy' states alike. The imperatives outlined in these were consistent with the theorizations that science and technological advancements shape and mold "military and diplomatic affairs (Aaron - Dennis, 2004, 240)", thus forming and informing techno-enmities. Technological innovations, specifically AI's use in border regimes, also aids in the transferability of a disciplinary sovereignty whilst diminishing its responsibilities via rights and protections guaranteed to non-members if they are physically present on state grounds.

The literature and data generated by participants allowed me to trace the challenges posed by the proliferation of AI in the public sector. First, the convergence of

public spheres with private sector AI conforms the public sphere to market rationalities, eroding the goals of public benefit and prosperity and prioritizing profitable avenues of technological applications. This convergence also blurs accountability between producers and users of AI in the public sphere, where it is now unclear who is accountable for errors or harmful effects incurred by publics on the receiving end of AI interface and engagement. These present challenges for legal proceedings and procedural fairness in the immigration sector and beyond. In this context, AI and its applications act as mechanism for distancing persons from accountability and responsibility. Legal professionals and interviewee's placed emphasis on how AI is changing and creating barriers within the legal profession, creating grave implications for harm remediation and appeals. AI's use in immigration processing poses a grave challenge for in immigration lawyers and vulnerable applicants already facing linguistic barriers alongside issues of digital literacy, access, and the inability to afford legal counsel to investigate or appeal technological errors in the assessment of their files. Participants highlighted the lack of dialogue between the private sector of AI producers, public policy makers, and those engaged by AI applications. Disciplinary divides also reinforce the lack of collaborative approaches in the development of AI designed to be used in public administration.

Regulatory challenges are persistent given that policy must catch up with the pace of both public and private adoption of AI. This is especially challenging given the nature of AI regulation in Canada, with reference to the proposed (and failed in parliament) Canadian Artificial Intelligence and Data Act (AIDA). AIDA from its conception raised concerns for its lack of public consultations and lack of regulatory oversight requirements (Attard – Frost, 2025). Participants also cited that any existing protections

offered for AI are consumer based or industry facing, with protections centering on customer relations and business growth rather than privacy and safety. Participants specified the need for more legally enforceable avenues for accountability in relation to potential harmful outcomes and applications. Given that AI and its applications are not outside the folds of society and structures that create and deploy them, its deployment at the Canadian border and beyond demonstrates that the geopolitical terrain further amplifies differential engagement by AI processing mediums. Specific examples include the use of Chinook at the time of higher-than-normal declines of student visa applications from Africa, including the refusals of visas for African AI experts for the NeurIPS conference. Another example is the function of bulk refusals in the Chinook program, which featured the ability to refuse applicants based on country of origin. In this context, both data availability and scarcity consolidate pre-existing geopolitical variances in admission and refusal rates. In turn, the expediency promised by AI border technologies simply relies on and operationalizes the racialized and exclusionary practices reported in the HOC reports on the instances of racism involving the CBSA. Findings from this study show that women—especially racialized women—are more likely to experience differential and violent outcomes in relation to the automation of immigration decision making in Canada. It has shown that refugee women experience significant barriers around ‘believability’ in complex cases of gender-based violence, with no alternatives offered for complex case processing should AI integration within immigration processing continue.

The literature and investigative reports on pre-existing issues surrounding the sensitive and discretionary nature of gendered immigration and the refuge process show

that AI creates an additional layer of barriers to an already complex and multi-layered process. Participants highlighted the complex nature of many cases where women were victims of abuse from multiple directions (e.g., their home state, spouses, and then sponsors), raising concerns about how AI would engage with such complexities. Considering these challenges, participants questioned how AI would be able to respond to such cases, or if clear guidelines exist regarding which cases can and cannot be assessed by AI. Thus, women and racialized persons are more likely to experience negative outcomes along the lines of racism and sexism at digitally mediated borders. They also face the possibility of engaging AI without the accessibility, sensitivity, or procedural safeguards needed to process their cases.

This dissertation advances the scholarship in Canadian political science and immigration studies as well as the broader scholarship on AI and society by offering an intersectional analysis of AI's integration into Canadian immigration systems. It furthers the critical literature on AI by situating and contextualizing Canada's use of AI in immigration settings within historical and ongoing project of coloniality, as well as racialized border governance. Within the Canadian context, this dissertation demonstrates how nationalized AI strategies, often neutralized as the next step in a universalized modernization schema, constitute a form of racialized statecraft and sovereign groundskeeping. In reading together Canada's historical goals to differentiate itself from its Western counterparts through humanitarian leadership and the formation of an internally diverse population, with that of its ongoing policies of exclusion and racialized immigration policies, it brings to light how the integration of AI tools in the public sector(s) reproduce racialized immigration admission programs in the emerging

AI era. By combining qualitative interviews with immigration, legal, AI, and subject matter experts, surveys with first- and second-generation immigrants, and policy documents, this dissertation shows the gaps between state goals of AI leadership and the public reception of AI. The intersectional approach to this study, made visible how AI based border technologies disproportionately engage and harm women and racialized (im)migrants whilst stretching the physical boundaries of the state, expanding its sovereignty beyond the physical territoriality of its entrance and exit points.

POLICY RECOMMENDATIONS

Reflecting on the findings, which, in one form or another, urge for regulatory practice or policy reform, this section presents suggested avenues for the formulation of socially grounded AI policy. Given that the use of AI in public matters is a reality rather than a hypothetical possibility, policy makers must turn its resources towards social innovation rather than expeditious technosolutionism. Public consultations prior to the adoption, use, and deployment of AI within public programs is central to the possibility of a socially grounded introduction of emerging technologies. Though guided by technosolutionism, Canadian public departments must draw lines regarding where automation is appropriate and where it is simply too dangerous to deploy. The most immediate and actionable recommendation is to provide the ‘right to refuse’ for case assessment through AI driven or technological automation. The need for ‘right to refuse’ options and policy is evidenced by the challenges experienced by immigrants and refugees facing gendered violence and sensitive cases that require high levels of discretion. Such provisions disrupt contemporary attempts to design gender-inclusive interfaces and instead urges the need for pathways wherein applicants can refuse or request human triaging, with additional

protections for vulnerable people, as well as victims of abuse, war, and refugees experiencing trauma. Most importantly, there is an urgent need for the separation of public and private sectors in relation to the adoption of private sector AI within public structures. The public-private convergence is incredibly concerning as it hinders consideration for public interest and instead privileges profit-based growth through technological integration. This entails, above all, funding social innovation prior to turning towards technological solutions. When technological solutions become necessary, proposed public-private partnerships advancing AI technologies must clearly articulate goals and objectives which center public advancement rather than corporate growth.

LIMITATIONS

This study was conducted between the years 2018 – 2024, spanning 6 years, during which three major events of ongoing displacement (Afghanistan, Palestine, and Ukraine), as well as the catastrophic COVID-19 pandemic took place. The ongoing nature of major displacement events and the resulting trauma to displaced persons produced less than ideal circumstances to engage grieving communities for research. The pandemic lockdowns and social distancing presented challenges in the ability to conduct field research and connect with refugee agencies to include their firsthand experiences with new and emerging technologies. Additionally, the proprietary and securitized nature of border technologies produced another limitation. There are currently no opportunities to engage with, audit, or assess these technologies or programs in Canada. This study addressed these limitations with secondary analysis on these technologies, an analysis of primary hearings, and witness testimony provided to the Canadian House of Commons.

RECOMMENDATIONS FOR FUTURE RESEARCH

The advent of AI's integration into Canadian public governance impacts multiple sectors and fields differentially, thus require further study from a variety of disciplinary and theoretical frameworks is necessary. In light of the emerging climate crisis and its active role in the displacement of people, UN agencies urged states to amend their climate change policies to consider and include displaced people ([UNEP, 2023](#)). These policies would be required to shift their conceptions of what constitutes a refugee and account for climate change and environmental displacement. The convergence of these matters with Canadian immigration policy and the use of AI for the processing of humanitarian applications requires urgent study. Relatedly, an investigation into AI's reliance on planetary resources and its impact on climate change is also pertinent. Additional research is needed to incorporate Indigenous perspectives on data sovereignty as it relates to the formulation of national AI policy and its applications in Canada. Given the overrepresentation of Indigenous communities in carceral data and the use of AI in all levels of Canadian policing, a study centering Indigenous experiences is urgent to support decolonial qualitative assessments in carceral AI research. As the Canadian DND / CAF has their own AI strategy, international relations and security studies perspectives would benefit from understanding how the developments in AI for warfare and defence purposes impact diplomatic relations and the consolidation of power. In this study, several participants noted issues around electrical or power failures, expressing concern with how these events could impact AI applications. From this perspective, it would be useful for future studies to investigate the material infrastructures required for the secure applications of AI given the current realities of cyberattacks and various threats to digital

safety. Finally, AI research centering affected communities and conducted in collaboration with community partners would assist in addressing the ongoing challenges of concentrated knowledge production (within the global North and academia) and contribute to a diversity of perspectives needed for AI's applications to become a program of shared benefits and safety.

APPENDIX A: WEIZENBAUM INTERVIEW FULL

PAGE 2 The Tech TUESDAY, APRIL 9, 1985

Weizenbaum examines computers and society

Interview

By Diana Ben-Aaron

Professor Joseph Weizenbaum is well-known both as a teacher of computer science and as an activist for scientific and educational responsibility. He designed the first computerized banking system before coming to MIT in the 1960s. He invented ELIZA, the first "psychiatrist" program, and was moved by the reaction to it to write the best-selling *Computer Power and Human Reason*.

Q: What, if anything, do you think should be the role of the computer in education?

A: Yours is an often-asked question. In a sense, it is upside-down. You start with the instrument; the question makes the assumption that of course the computer is good for something in education, that it is the solution to some educational problem. Specifically, [your] question is, "what is it good for?"

But where does the underlying assumption come from? Why are we talking about computers? There is something about the computer — the computer has almost since its beginning been basically a solution looking for a problem.

The questioning should start the other way — it should perhaps start with the question of what education is supposed to accomplish in the first place. And once one has identified the urgent problems, then one can perhaps say, "Here is a problem for which the computer seems to be well-suited." I think that's the way it has to begin.

Q: What are the problems of the educational establishment?

A: The first priority has to be, it seems to me, to lend to those to be educated a mastery of their own language so that they can express themselves clearly and with precision, in speech and in writing. The second priority is to give students an entrée to and an identity within the culture of their society, which implies a study of history, literature, and all that.

And the third, very close to the second, is to prepare people for living in a society in which science is important, which means to teach them mathematics, or at least arithmetic, and the fundamental skills important to observing the world.

A school system which meets these main objectives might think about introducing something new. Meanwhile, researchers should certainly work on innovative education — including computer-aided education. But we ought not to use entire generations of schoolchildren as experimental subjects.

In part, this response is based on my belief that what primary and secondary schools teach about computers now is either wrong or can be learned by a reasonably educated person in a few weeks.

Now how well are the schools fulfilling the first priorities? Certainly the answer with respect to language is miserably, absolutely miserably.

It is terribly important to ask the reasons the schools are failing so miserably. I think that even if one could show that the introduction of the computer into schools actually effected an improvement, say for example in reading scores, even if one could show that, the question, "Why can't Johnny read?" must still be asked.

There is a very good reason that questions of that kind are uncomfortable. When we ask this question, we may discover that Johnny is hungry when he comes to school, or that Johnny comes from a milieu in which reading is irrelevant to concrete problems or survival on the street — that is, there is no chance to read, it is a violent milieu, and so on.

You might discover that, and then you might ask the next question: "Why is it that Johnny comes to school hungry? Don't we have school breakfast programs and lunch programs?" The answer to that might be, yes, we used to, but we don't any more.

When you ask questions like that, you come upon some very important and very tragic facts about America. One of the things you would discover is that education has a very much lower priority in the United States than do a great many other things, most particularly the military.

It is much nicer, it is much more comfortable, to have some device, say the computer, with which to flood the schools, and then to sit back and say, "You see, we are

doing something about it, we are helping," than to confront ugly social realities.

Q: Do you think that the computer is creating a technical elite, reinforcing old power structures, or remaking American society?

A: I think the computer has from the beginning been a fundamentally conservative force. It has made possible the saving of institutions pretty much as they were, which otherwise might have had to be changed. For example, banking. Superficially, it looks as if banking has been revolutionized by the computer. But only very superficially. Consider that, say 20, 25 years ago, the banks were faced with the fact that the population was growing at a very rapid rate, many more checks would be written than before, and so on. Their response was to bring in the computer. By the way, I helped design the first computer banking system in the United States, for the Bank of America 25 years ago.

Now if it had not been for the computer, if the computer had not been invented, what would the banks have had to do? They might have had to decentralize, or they might have had to regionalize in some way. In other words, it might have been necessary to introduce a social invention, as opposed to the technical invention.

What the coming of the computer did, "just in time," was to make it unnecessary to create social inventions, to change the system in any way. So in that sense, the computer has acted as fundamentally a conservative force, a force which kept power or even solidified power where it already existed.

Q: Did you have these concerns when you were designing the banking system?

A: Not in the slightest. It was a very technical job, it was a very hard job, there were a number of very, very difficult problems. It was a whole of a lot of fun attacking those hard problems, and it never occurred to me at the time that I was cooperating in a technological venture which had certain social side effects which I might come to regret. That never occurred to me; I was totally wrapped up in my identity as a professional, and besides, it was just too much fun.

Q: When did it occur to you?

A: I think after spending say 10 years at MIT — I came here in 1963. Much of that time, much of [the next] 10 years were very turbulent years politically. . . . Soon after I got here, President Kennedy was assassinated. There was the dream of the Great Society that President Johnson announced, and the civil rights movement, it was very hard-fought, and I of course participated, and the Vietnam War.

The knowledge of behavior of German academics during the Hitler time weighed on me very heavily. I was born in Germany, I couldn't relax and sit by and watch the university in which I now participated behaving in the same way. I had to become engaged in social and political questions. Once that happened I started to think and write about issues of this kind, some realities became increasingly clear to me.

The computer is . . . the beating heart of virtually every modern military system you can think of, with the exception of the foot soldier.

Q: What about computers and the military?

A: The computer was of course born to the military, so to speak. Certainly after the Second World War the baton, so to speak, was passed to the Americans, the leadership for developing the computer came into American hands, and from that point to this I think it is safe to say that by far most of the research and development of computers has been paid for with military money, directly or indirectly.

It is also safe to say, it is simply a matter of fact, that to date weapons which threaten to wipe out the human species altogether could not be made and could certainly not be delivered with any sort of precision were it not for the computers which guide these weapons.

The computer is very deeply involved with the military. Today it counts as the beating heart of virtually every modern military system you can think of with the exception of the foot soldier.

Q: So to be a computer science professional very often means to be working in defense?

A: I would endorse that sentence, except that I would wish either that the last word be put in quotes, or that you change the sentence to read ". . . to be involved in the military."

When we think today, for example, of the masses of computers in helicopters, and in all sorts of mobile things like tanks and airplanes, and we think of the many places on earth where these machines are being used every day, whether it is in Afghanistan or someplace in Africa, then the term "the military" also deserves to be replaced with something considerably harsher.

Instead of saying the computer is involved with the military, say the computer is involved with killing people. It is only when you come to that vocabulary, I think, that the euphemism begins to disappear, and I think it's very important that it disappear.

Q: How can people continue to do this, knowing that the things they build will be involved in killing people?

A: People have a series of rationalizations. People say for example that science and technology have their own logic, that they are in fact autonomous. This particular rational-

ization is profoundly false. It is not true that science marches on in defiance of human will, independent of human will, that just is not the case. But it is comfortable, as I said: it leads to the position that "if I don't do it, someone else will."

Of course if one takes that as an ethical principle then obviously it can serve as a license to do anything at all. "People will be murdered; if I don't do it, someone else will." "Women will be raped; if I don't do it, someone else will." That is just a license for violence.

Other people say, and I think this is a widely used rationalization, that fundamentally the tools we work on are "mere" tools; the technology itself is neutral and value-free and it just depends how one uses it. And besides — consistent with that — we can't know, we scientists cannot know how it is going to be used. So therefore we have no responsibility.

Well, that is false. It is true that a computer, for example, can be used for good or evil. It is true that a helicopter can be used as a gunship and it can also be used to rescue people from a mountain pass. And if the question arises of how a specific device is going to be used, in what I call an abstract ideal society, then one might very well say one cannot know.

But we live in a concrete society, [and] in this society, it is perfectly obvious that when something like a computer is invented, then it is going to be adopted will be for military purposes. It follows from the concrete realities in which we live, it does not follow from pure logic.

If you look at the enormous fruits of human genius that mankind has developed in the last 50 years, atomic energy and rocketry and flying to the moon and coherent light, it turns out that every one of these triumphs is used primarily in military terms. So it is not reasonable for a scientist or technologist to insist that he or she does not know — or cannot know — how it is going to be used.



Tech photo by Sidhu Banerjee

Q: Do you think the younger generation of computer scientists coming out of MIT has these concerns?

A: I do not know. Just do not know. I should think that if concerns were very widespread, if it were deep-rooted, then perhaps progress in computer development might be somewhat slower than it is. So I do not think that younger people are concerned about these things today. But I have very little way of measuring it. I hope I am wrong.

Of course, the support that the Institute generally gets from the military, which is to say the Department of Defense and to a certain extent the Department of Energy, makes it pretty clear that it is not only computer science which is involved here.

By the way, let me say an additional rationalization for working on these things is that there will be wonderful fallout. We get the space program, and out of the space program we get missiles which can devastate the earth in a very few minutes, but we also get other things — Teflon, for example, and the microminiaturization of components and so on, eventually gives us electronic watches. This is a derivative of "things can be used for good or evil."

But I think the following: that if one were to ask the medical community in the United States to do research on bacteriological warfare — that is, to actually go to a laboratory somewhere in the United States and engage in that work — that most medical people would refuse.

If they were told that out of this would come antibiotics and all sorts of other good and useful products, just in fallout, I think the medical community would in general say, "Well, if we're after antibiotics and other medicines, then let us work on that. To work on that by way of working on bacteriological warfare seems to us insane." I think the rest of the scientific and engineering community might adopt a similar stance.

Q: But they haven't already?

A: Certainly not. . . . the strategic computing initiative is described by the military to be fundamentally three weapons systems and nothing else, there is no mystery about it, and for example, one member of the laboratory I am in, the Laboratory for Computer Science, seriously and in print suggested we might have television sets on which we can change the channels by voice command as a by-product of the Strategic Computing Initiative — see, isn't that wonderful?

Q: What is your greatest fear for the future?

A: I have children, let me say, first of all. And of course at this university as at others one sees very many young people. My greatest concern is that these young people now will ever be permitted to grow up, ever to get as old as I am now. I think that is a very realistic fear.



Tech photo by Sidhu Banerjee

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