

AI Futures Policy Lab: Montreal

April 2019



AUTHOR



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ACKNOWLEDGEMENTS

This engagement is part of a series of workshops hosted by the Brookfield Institute for Innovation + Entrepreneurship (BII+E) and the Canadian Institute for Advanced Research (CIFAR).

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In January 2018, CIFAR and the Brookfield Institute for Innovation + Entrepreneurship (BII+E) formed a partnership to design and host five AI Futures Policy Labs aimed at generating greater awareness of the long-term implications of AI and exploring the future of AI policy in Canada. Between June and October 2018, CIFAR and BII+E held labs in Toronto, Edmonton, and Vancouver, with the participation of 91 emerging policy leaders.

On November 22, 2018, CIFAR and BII+E hosted the fourth AI Futures Policy Lab in Ottawa, Ontario. This event brought together 28 emerging policy leaders with the aim of:

- + Building capacity of future public service leaders to understand the policy implications of AI and respond appropriately
- + Providing policymakers with a direct line of sight into the AI sector: the myths and hype, the evolving state of technological advances, and potential applications
- + Contributing to early government responses to emerging AI technologies

To achieve these aims, this lab was designed to raise awareness of the opportunities and challenges associated with current AI capabilities and applications, encourage critical thinking around potential future scenarios, and facilitate the development of policy recommendations. Feedback from the previous three AI Futures Policy Labs were used to re-design certain aspects of the lab's agenda and content. Participants were presented with a case study featuring a current AI application associated with a specific policy domain (i.e. housing, justice, education, immigration, and hiring). Facilitators guided each respective group through their case study and accompanying prompts. During the final session of the day, groups presented policy recommendations related to the opportunities and challenges associated with their case study. The agenda developed for the day is provided in appendix A.

CASE STUDY POLICY DOMAINS

Prior to the lab, six sets of case studies were developed. Each set was associated with a specific domain: housing, justice, education, health, immigration, and hiring. Participants were organized into groups of approximately five people, and assigned to a domain to discuss as a group.

HOUSING

AI is impacting the housing sector in multiple ways, from smart-home devices like [Nest](#) to intelligent tools that help to curb energy use, and services that even act as the middle-man between landlords and tenants. Advancements in this domain afford residents with potential benefits, but also create challenges regarding privacy and safety in a domestic environment. Within this domain, participants examined [Naborly](#) ([appendix B](#)), a tenant screening application that generates risk scores to help landlords make smarter letting decisions.

JUSTICE

The legal sector is being impacted by recent developments in AI and machine learning capabilities that have enabled applications to automate legal research, due diligence processes, contract review and management practices, and help to predict legal outcomes. Participants within this domain were given the chance to explore the policy impacts of [ROSS intelligence](#) ([appendix C](#)), an artificially intelligent legal research tool that applies natural language processing to increase lawyer's ability to identify relevant information.

EDUCATION

There is vast potential for AI to transform education in ways that make learning more accessible, provide personalized curriculum, and support educators in delivering content. Participants in this group analyzed [Nestor](#) ([appendix D](#)), an artificially intelligent class assistant that uses machine learning algorithms and advanced facial recognition to analyze the attention levels of students listening to online lectures.

HEALTH

A number of large companies within Canada are integrating AI screening applications into their hiring processes. Participants within this group examined [Ideal](#) ([appendix E](#)), a talent intelligence application that centralizes data gathered from applicants resumes, chatbot conversations, and online assessments to screen and analyze candidates in real time. Ideal then identifies and provides the employer with a shortlist of strong candidates.

IMMIGRATION

Participants within this group examined an AI app that is automating Canada's immigration process¹ by sorting applications into two streams: simple or complex ([appendix F](#)). This effort has been undertaken by Immigration, Refugees, and Citizenship Canada (IRCC) in an attempt to ease the backlog of immigration applications that immigration officers are faced with. Applications deemed as simple do not need to undergo review, and are processed at a faster rate than those that are identified as complex. Complex cases must be reviewed by a human, resulting in longer processing times.

HIRING

A number of large companies within Canada are integrating AI screening apps into the hiring process. Participants within this group examined [Ideal](#) ([appendix G](#)), a talent intelligence application that centralizes data gathered from applicant resumes, chatbot conversations, and online assessments that screen and analyze candidates in real time. Ideal then identifies and provides a shortlist of strong candidates to employer.

¹ Adapted from "Bots at the Gate: A Human Rights Analysis of Automated Decision-Making in Canada's Immigration and Refugee System" © 2018 International Human Rights Program (Faculty of Law, University of Toronto) and the Citizen Lab (Munk School of Global Affairs and Public Policy, University of Toronto). Licensed under the Creative Commons BY-SA 4.0 (Attribution-ShareAlike Licence)

POLICY LAB ACTIVITIES

1. THE 'AI' THING FROM THE FUTURE

The lab began with an ice-breaker game, The 'AI' Thing From The Future.² The purpose of this activity was to encourage participants to be creative and think beyond the current reality. The format of this game was changed from the previous labs because a new edition of the original game with updated card prompts was released. CIFAR + BII+E also added an AI card to the prompts to encourage participants to think about specific AI capabilities and applications. Each table of participants played two rounds of The 'AI' Thing from the Future with the help of a facilitator. Each group was then given four cards, each containing a unique prompt related to the type of city this future is situated in, object of focus, a theme, and an AI capability or application. Participant were provided with a template to record their ideas.

2. AI 101

Alexandre Drouin, Research Scientist at Element AI, provided participants with a background on the components of artificial intelligence, subfields of intelligence, types of learning (e.g. machine learning, deep learning, and reinforcement learning), and artificial neural networks. Drouin also outlined the major players in the AI ecosystem, including Yoshua Bengio, Geoffrey Hinton, and Yann LeCun, as well as acknowledged the significance of early funding towards AI research from CIFAR. He capped off his presentation by highlighting challenges related to ethics, bias, safety, and accountability that lie ahead.

² Adapted from Stuart Candy and Jeff Watson (Situation Lab)

3. ANALYZING CURRENT AI APPLICATIONS

Within their pre-assigned groups, participants were presented with an example of a current AI application (Naborly, Nestor, ROSS Intelligence, Ideal, InnerEye, or AI for Immigration). Each group was given time to read the case study and discuss any preliminary questions within their groups before turning to the canvas ([appendix H](#)). This canvas prompted participants to think about the types of individuals or groups that are impacted within this case study (positively and/or negatively), as well as potential impacts in the social, technological, economic, environmental, political, and values domains. Facilitators encouraged active participation by asking people to write their thoughts on sticky notes and place them on the canvas, first individually and then collaboratively as a group.

4. CIVIL SOCIETY'S ROLE IN AI GOVERNANCE

Valentine Goddard, Founder and CEO of Artificial Intelligence Impact Alliance (AIIA), spoke of the potential for AI to improve disaster prevention, transportation and education. Specifically, about data as a force for solving public challenges, and the importance of using data in a way that supports public interest. Her talk also highlighted the need for co-designing responses to the impacts of AI, in particular engaging marginalized and vulnerable groups to ensure AI is used in ways that benefit all.

5. IMAGINING AI IN 2028

Facilitators then led their groups into an open discussion about how their case study might look in the year 2028. Throughout these labs, this discussion has proven useful in enabling participants the freedom to imagine future scenarios that incorporate the same themes of their current AI case study. This included imagining how each application may develop and impact individuals, communities, and policies, as well as social, cultural, political, and economic processes within the next 10 years.

6. AI POLICY 101

Brent Barron, Director of Public Policy at CIFAR, provided a brief overview of the current AI policy landscape to give participants a sense of initiatives currently underway, and inspire ideation during the next section of the workshop. His presentation highlighted national initiatives in Canada, including the [Pan-Canadian AI Strategy](#), the [Treasury Board Directive on Automated Decision Making](#), the CIO Strategy Council's [draft standard](#) on automated decision systems, federal supercluster funding (e.g. [SCALE.AI](#)), and the [Montreal Declaration](#). This presentation also touched upon international examples, such as the General Data Protection Regulation (GDPR) in the European Union, the introduction of the AI in Government Act in the United States, and the British government's investment in skills and commitment to be a leader in ethical data use, among others.

7. TAKING ACTION TODAY

Following this discussion, facilitators presented their groups with the second canvas ([appendix I](#)), which prompted participants to reflect on the discussions from the previous canvas and group deliberation. To aid their thinking, each group focused on a canvas that asked them to consider the short-term and long-term policy outcomes related to their case study. For example, these goals could include reducing bias or developing more advanced applications in the same domain. Participants then choose one goal they felt was most important to focus on, and collaboratively developed a set of policy responses that could assist in achieving that goal. Unlike previous labs, where each group was provided with a single template to write collective recommendations, each participant at the Montreal lab was provided with a template ([appendix J](#)) to write a description of the case study they examined, the associated opportunities and challenges, and their recommendations individually. Naturally, this resulted in a larger number of recommendations, which are represented in the recommendations section below.

8. SHUFFLING + SHARING

During previous labs, one participant from each group would give a short presentation to describe the case study that their group focused on and the policy recommendations they developed. However, feedback indicated that this approach didn't give participants enough of an opportunity to ask questions about different case studies. During the Montreal lab, participants were reshuffled into groups that included one person from each case study domain. Each participant was given the opportunity to describe the case study that their former group focused on during the day, as well as the resulting policy recommendations. Other participants were then able to ask clarifying questions.

POLICY RECOMMENDATIONS³

DOMAIN: HOUSING

Through their discussions about Naborly, participants highlighted the app's multiple benefits for landlords. One benefit is the app's accessibility to landlords, in large part because it is free to use. This could make it easier for landlords who are just entering the market to safely secure a tenant. It also enables landlords to quickly assess the profile of prospective tenants, by producing a risk score using a variety of financial, health, and employment information. However, participants recognized that the historical data used to inform risk scores are rife with systemic bias. Therefore, marginalized and vulnerable individuals and groups may be routinely flagged as "risky" tenants.

To capture the benefits and mitigate the risks associated with this application, participants produced the following recommendations:

- + Create a civic data trust to inform and govern the creation/access of representative datasets used to train models.
- + Create equality through a design framework or directive that can be adopted worldwide.
- + Develop regulation that requires explainability and accountability for decisions made by automated systems.
- + Increase the digital literacy of the general public.
- + Canada should adopt the General Data Protection Regulation (GDPR).
- + Provide prospective tenants with an avenue of adjudication when they feel as though they have been inaccurately scored.
- + Fund research into the value of these metrics and their contribution to bias. Use this evidence to develop better software procurement and policy to regulate this market.
- + Publish a public advisory about companies that use non-evidence based algorithms (and give these companies a chance to respond).
- + Provide government-funded financial incentives to similar apps that design transparent scoring processes.
- + Build an equivalent, government-funded app that drives responsible use of data and a more balanced relationship between tenant and landlord.

DOMAIN: HEALTH

Participant discussions about InnerEye revealed a number of advantages that the app provides to both patients and healthcare practitioners. This includes the potential for more widespread and timely access to state-of-the-art screening that can be carried out digitally without the physical presence of a specialist. This can reduce costs while creating more personalized client care. However, this technology has the potential to foster unequal access, if the use of the app is only permitted in certain areas or hospitals. Additionally, confidentiality of data is a concern for patients.

³ Disclaimer: The following policy recommendations were developed by participants through an exercise designed to help emerging policymakers explore existing policy levers in relation to specific case studies. These do not represent the views of CIFAR and BII+E.

Participants within this group produced the following policy recommendations:

- + Create a space for dialogue with the affected population and and policymakers.
- + Require the anonymization of data to support the privacy and well-being of the patients.
- + Democratize access to the app.
- + Regulate access to patient files so that a patient's progress can be followed, while still protecting personal information.
- + Provide financing for the development and implementation of this app or similar technology.

DOMAIN: HIRING

While examining Ideal, participants illuminated several benefits to using this technology. For example, if designed and implemented in the right way, Ideal has the potential to reduce hiring biases. It could also reduce economic inefficiencies of employee attrition, by more accurately matching individuals with suitable jobs. Additionally, it creates efficiencies for high-volume hiring. While discussing these benefits, participants also noted the challenges associated with the use of this app. Instead of reducing bias, they recognized that the app carried the potential to amplify existing bias and even introduce new kinds of biases, depending on how it is designed. Participants also noted a concern associated with regulating this kind of technology, specifically, finding the right balance between regulating new technology without stifling innovation and privileging status quo hiring practices.

To counter the potential negative impacts of AI-driven hiring apps and enhance the benefits, participants suggested the following recommendations:

- + Build the AI literacy of regulators and general public.
- + Develop performance-based criteria that can objectively assess the differences between current analogue and digital hiring practices and outcomes, in order to test for bias.
- + Increase the digital literacy of traditionally marginalized and vulnerable workers.
- + Develop guidelines for, and train, provincial labour boards to deal with AI-driven discrimination.
- + Require companies to disclose the use of AI-driven hiring processes.
- + Restrict which kind of data can be used to make hiring decisions, and require AI-driven hiring apps to allow users to opt out or limit data collection without penalty in the hiring process.

DOMAIN: EDUCATION

Through their discussions about Nestor, participants acknowledged the potential benefits this technology affords to both students and teachers. Since Nestor provides real-time feedback about performance, participants recognized the positive impact this could have on both student and teacher achievements. They also recognized the possibility for Nestor to provide more personalized curricula, and deliver a higher quality education than traditional classroom methods. However, participants also identified challenges associated with individual privacy, citing the use of facial recognition and social media monitoring as a potential surveillance issue. Participants also expressed concern about focusing on performance over more humanistic measures, seeing them as detrimental to the well-being of both students and teachers.

Participants developed the following recommendations to promote responsible use of technology designed to observe individuals:

- + Recognize the right to privacy of internal states (e.g. thoughts and emotions).
- + Pilot new data governance models based on third party stewardship (e.g. data trusts) to help direct value creation towards socially beneficial goals (e.g. improving the quality education).
- + Legislate the use of facial recognition tools.
- + Create legal aid clinics focused on technology to help remedy any privacy-based or other harms associated with emerging technology.
- + Enable affected individuals to participate in the development of regulation.
- + Ensure that privacy protection does not become a function of socioeconomic status.

DOMAIN: JUSTICE

Participants within this group highlighted the opportunities ROSS Intelligence provides to both law professionals and citizens. Since ROSS is a digital app, it has the potential to expand access to legal services. ROSS also increases the efficiency of lawyers by assisting with information collection. Since lawyers spend less time searching for relevant case information, this app also has the ability to drive down costs for customers, increasing the affordability and accessibility of legal services. However, participants also acknowledged the challenges of using AI-driven legal applications. These include a potential negative impact on paralegal professionals, either in a reduction in demand or a decrease in revenue. Some participants also recognized that if a particular AI-driven legal app gained immense popularity, it could also obtain a monopoly status as a provider of legal services.

Recommendations:

- + Make ROSS Intelligence a public good.
- + Develop and enforce relevant antitrust regulation.
- + Support research into the future of publicly owned AI-driven legal services.
- + Support the development of open models for AI-driven legal applications.
- + Create an regulatory body responsible for overseeing legal sector AI innovation.
- + Develop standards for AI applications in the legal sector.

DOMAIN: IMMIGRATION

While discussing the IRCC's efforts to automate Canada's immigration system, participants illuminated a number of opportunities afforded by this development. These include faster, more efficient processing times, benefiting both applicants and workers by increasing processing speed and reducing workflow for Canadian immigration staff. It also has the potential to reduce bias. A more efficient immigration system benefits a number of stakeholders, including but not limited to, employers and cities. Yet, this kind of system also has the potential to exacerbate existing biases or introduce new forms of discrimination. Additionally, there is the possibility that the system itself could be gamed by applicants. Moreover, participants recognized that any failure of the system could have a negative impact on Canada's reputation, and on the use of AI for government services in general.

To address these concerns and promote the development of innovative AI-driven immigration applications, participants supplied the following recommendations:

- + Develop a robust appeal process for applicants who believe they have been wrongfully assessed.
- + Develop and deliver a broad-based public education process on AI applications.
- + Ensure AI-driven immigration applications are transparent and accessible to build public trust.

GENERAL REMARKS

Participant feedback demonstrated the value of having accessible morning sessions that shared background information on current AI capabilities and applications, as well as AI policy. Many highlighted the final canvas as being particularly useful to think through policy recommendations. Additionally, the redesign of the final session of the lab enabled participants to discuss their case studies with a different group of participants. The decision to redesign this part of the lab for Montreal was based on feedback from previous lab participants who wished for more discussion time. Montreal participants also indicated a desire for more discussions around data trusts, as well as information on how to practically engage with AI ethics and policy, as part of the morning level setting sessions. Overall, participants left with insight into the various opportunities and challenges associated with AI's development and use, along with a stronger understanding of where regulation and government intervention is needed.

NEXT STEPS

A final report summarizing all five AI Futures Policy Labs will be published in the spring of 2019. CIFAR and BII+E are actively exploring several options for future series.

APPENDICES

APPENDIX A: AGENDA

Time	Activity
8:30am	Light Breakfast & Networking
9:00am	Opening Remarks + Brent Barron, Director of Public Policy, CIFAR + Heather Russek, Director, Policy Innovation Platform, The Brookfield Institute for Innovation + Entrepreneurship
9:15am	Activity: Thing From the Future In this warm-up activity, participants will be dealt a series of cards and use them to create a fictional object that could exist in the future.
9:35am	AI 101: + Alexandre Drouin, Research Scientist, Element AI
10:30am	Break
10:45am	Activity: Analyzing Current AI Applications In small groups, participants will dive deeper into a current application of AI, analyzing its social, economic, and political impacts among different stakeholder groups.
11:45am	Lunch
12:30pm	Ethical Dimensions of AI: + Valentine Goddard, Founder and CEO, AI Impact Alliance
1:00pm	Discussion: Imagining AI in 2028 In small groups, participants will explore the social, political, economic, and ethical dimensions of future AI scenarios.
1:30pm	Break
1:45pm	AI Policy 101: + Brent Barron, Director of Public Policy, CIFAR
2:15pm	Activity: Taking Action Today Participants will brainstorm policy responses to support the ethical development and beneficial use of AI. In small groups, participants will finalize three policy recommendations.
3:15pm	Activity: Shuffling, Sharing & Closing Members of each breakout group will be brought together to share their case studies for the day, as well as the responses developed, with each other.
4:00pm	Social & Networking

APPENDIX B: NABORLY

Founded in 2015, Naborly is a tenant screening app that generates risk scores, enabling landlords to make smarter letting decisions.

Naborly serves as a free online app for property rentals. Landlords send prospective tenants a link to an online application where they fill in their rental history, employment, and financial information. Naborly then analyzes and produces an applicant risk score based on the applicant's income, identity and employment, credit ratings, criminal records, and rental history. Naborly's Applied Artificial Intelligence system, SHERLY, an inductive, deductive, and reductive reasoning system, continuously learns from thousands of rental applicants and their tenancy outcomes, allowing it to better identify patterns of risk.

Through this process, Naborly removes traditional factors of discrimination stemming from landlord biases related to tenant finance, social class, or race. Additionally, Naborly adjusts its scoring for each unique applicant, taking current rental property characteristics and the market prices into consideration. Results are delivered to the landlord within minutes of the application being submitted.

After an application is submitted, Naborly automatically creates a personal private profile for each tenant, information that is stored for future applications. This helps tenants build a verified rental history without the need for printing, scanning, and faxing documents. All information collected by Naborly on prospective and current tenants, landlords, as well as API Partners is protected by a state-of-the-art data security infrastructure. This ensures that the data held by Naborly remains accessible only to authenticated users and recipients with expressed permission from the user. Tenants can then use Naborly to apply to landlords that do not yet use the system.

Naborly democratizes rental record-keeping through the use of its global open_DOOR database system, which allows tenants, landlords and property managers to share feedback, evictions, judgements, and verified disputes. This provides both prospective applicants and tenants with an added layer of transparency before entering into a rental contract. While Naborly is fully compliant with Privacy and Fair Housing laws across the US and Canada, and its algorithms are regularly audited to ensure it continues to meet the requirements for compliance, this does not mean its system is verified beyond its compliance to these specific laws.

APPENDIX C: ROSS INTELLIGENCE

ROSS is an artificially intelligent legal research tool that applies cutting-edge natural language processing (NLP) to increase a lawyer's ability to sort through and find information relevant to their cases. Lawyers need to do substantial legal research to prepare for a case, normally taking days, weeks, or even months to source information - but ROSS can now automate this process. Using a combination of advanced keyword search and machine learning, ROSS enables lawyers to identify relevant information faster and more efficiently, and even uncover information that could have been missed by sifting through over a billion text documents per second.

ROSS's advanced NLP technology has been trained to understand legal jargon and encompasses all American case law. Lawyers can enter queries, such as the following: "When is secondary liability with respect to copyright infringement established?" and receive an overview of relevant key points drawn from a database of published and unpublished case law, substantive law, procedural law, and legal analysis.

ROSS is also able to track relevant developments in the law related to a specific legal issue and notify lawyers of relevant legal updates. Additionally, lawyers are able to upload a range of legal documents, such as memos, motions, or briefs, for ROSS to analyze and flag cases cited in the document that have received negative treatment in court.

Built on IBM Watson's cognitive computing platform, ROSS learns from past interactions and improves its accuracy the more the system is used. ROSS is currently used by American law firms such as Baker Hostetler and Latham & Watkins LLP.

APPENDIX D: NESTOR

Nestor, developed by LCA Learning, is an artificial intelligence class assistant that uses machine learning algorithms and advanced facial recognition to analyze the attention of students while they listen to online lectures. The software is currently being used for two online courses offered through the ESG business school in Paris, France.

Nestor aims to enhance the performance of both student and teacher. Using students' webcams, Nestor's facial recognition software tracks 20 key landmarks on students' faces—including the eyes, brows, mouth, and jaw—and can even detect when a student has pulled out their phone. Facial expressions are measured using three variables. The first is engagement, which measures facial muscle activation by detecting expressiveness and responsiveness. The second is valence, which measures the positive and negative facial expressions. The third is attention, which measures focus according to head orientation.

Once the system detects the student has lost focus, it can send a message alerting them to pay attention. Nestor can also predict when a student may start to get distracted again, sending them a signal to stay focused before attention is lost. Nestor also quizzes students on the content that was covered while they appeared to be distracted. Student performance and attention analysis, particularly when focus decreases, is then relayed to the teacher who can adjust future lessons appropriately.

APPENDIX E: INNEREYE

Project InnerEye, a research initiative led by Microsoft, applies state-of-the-art computer vision and machine learning algorithms to automatically analyze three-dimensional medical computer tomography (CT) and magnetic resonance images (MRI) to identify tumours and organs at risk.

The current processes of marking up radiology images is time-consuming and expensive, with images often only marked up once before radiotherapy begins, and once again at the end of the treatment cycle. InnerEye serves to enhance the workflow of healthcare professionals, such as radiologists, surgeons, and medical physicists, by analyzing images pixel-by-pixel to identify the exact position and size of the tumour, as well as the healthy organs that surround it. This enables healthcare professionals to more effectively plan a patient's radiotherapy strategy or surgery navigation.

By making this process more effective and cost-efficient, InnerEye patients can potentially receive "adaptive radiotherapy," with scanning, image markup, and therapy planning undertaken after every treatment session. In doing so, InnerEye can help identify which type of treatment works best by monitoring changes in tumour size.

InnerEye has been trained on scores of images from past patients that have been marked up by experienced health professionals, meaning its system should perform as well as a leading expert every time. Nevertheless, doctors retain full control of InnerEye's system, and can make adjustments to the software at any time until they are completely satisfied with the results they receive.

InnerEye is currently being used by the UK's National Health Service for prostate cancer diagnosis and treatment, but could potentially benefit any healthcare processes that rely on 3D imaging.

APPENDIX F: AI + IMMIGRATION⁴

Since 2014, Immigration, Refugees, and Citizenship Canada (IRCC) has been in the process of developing a “predictive analytics” system to automate activities currently conducted by immigration officials and to support the evaluation of immigrant and visitor applications. The system, as reported, will or can be used “to identify the merits of an immigration application, spot potential red flags for fraud and weigh all these factors to recommend whether an applicant should be accepted or refused.” Public statements from the federal government indicate that the proposed development and adoption of this technology emerged in response to an immigration system encumbered by backlogs and delays. An IRCC analyst confirmed in June 2018 that it is already using some form of automated system to “triage” certain applications into two streams, with “simple” cases being processed and “complex” cases being flagged for review by human counterparts.

While the status of implementing these automated decision support systems is not completely clear, it is apparent that at least some decisions are influenced or made by automated review. Concerns have been raised regarding the impact of automated decisions on a variety of human rights: if automated decisions are based on biased data or past decisions, the right to non-discrimination may be violated by a lack of human oversight. This is particularly dangerous in the context of immigration, which frequently includes vulnerable populations, limited oversight compared to domestic law, and extremely high impact on well-being.

Proponents of automated systems note that an immigration backlog remains, in part due to a recent surge in asylum seekers, and that long wait times are detrimental to all immigrants. Additionally, while acknowledging that biased decisions can result from automated decisions, they point to the fact that biased decisions can also be made by humans. They also point to examples of good algorithm design that actually reduced bias in outcomes compared to a human counterfactual.

APPENDIX G: IDEAL

Ideal is a talent intelligence app for high-volume recruitment processes that sources, screens, and analyzes candidates in real-time. Using artificial intelligence, Ideal aims to help companies improve the quality of hires, reduce attrition rates, and eliminate recruitment bias.

Ideal’s AI software centralizes candidate information gathered from resumes, automated chatbot conversations, and online assessments to help identify the best candidates. Ideal moves beyond the keyword search methods used by other automated hiring systems, and automatically scans, filters, and grades each candidate’s resume (as either an A, B, C or D candidate) in real-time.

Ideal assesses candidates based on a combination of disparate data sources, such as company performance metrics and past recruitment decisions (e.g. interview invitations, dismissals, employee retention). This enables the system to identify patterns and continuously improve its ability to shortlist strong candidates. Additionally, Ideal optimizes the available talent pool by surveying existing internal and external applicant databases for top candidates. The system also updates past candidate profiles with the latest publicly available information. This removes the need for inconsistent manual screening and allows employers to identify and contact the best candidates in just days instead of weeks.

Once candidates have been identified, Ideal’s chatbot enables companies to engage with candidates 24/7 and eliminate the need for initial screening calls by asking custom questions, such as the following: “When are you available to start work?” and “Are you currently enrolled in school or an education program?” Companies are also able to save time by only granting interviews to strong and relevant candidates.

Ideal’s data collection and analysis is flexible, and can be programmed to disregard demographic data during collection and analysis in order to prioritize compliance with Canada’s employment equity programs. Ideal is currently used by companies such as Indigo and Hot Topic.

⁴ Adapted from “Bots at the Gate: A Human Rights Analysis of Automated Decision-Making in Canada’s Immigration and Refugee System” © 2018 International Human Rights Program (Faculty of Law, University of Toronto) and the Citizen Lab (Munk School of Global Affairs and Public Policy, University of Toronto). Licensed under the Creative Commons BY-SA 4.0 (Attribution-ShareAlike Licence)

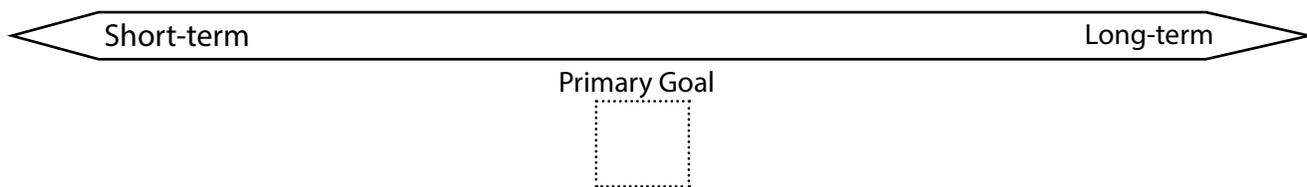
Case Study:	Today					 brookfield institute <small>for innovation + entrepreneurship</small>	
How is this affecting people?							
? Stakeholders	+ Positive			- Negative			
How is this affecting the world							
Social <small>Behaviour, demographics, health + leisure</small>	Technological <small>Research, innovation + invention</small>	Environmental <small>Air, water, pollution, cities + towns</small>	Economic <small>GDP, employment, incentives, income + distribution</small>	Political <small>Institutions, elections, lobbying, influence + power</small>	Values <small>Beliefs, ethics + priorities</small>		

Case Study:

Taking Action



What are the goals that we are trying to achieve?



What policy responses could help to achieve that goal?

Option

Benefits

Concerns

AI Futures Policy Lab - Vancouver



1. Describe the best case study/context in ~3 sentences:

2. What are the main opportunities and challenges?

3. What are your top 3 policy recommendations to address these opportunities and/or challenges?