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The Need for a Canadian Institute for AI Research and Development to Solve the Lack of Cross-Discipline Communication in the STEM and Arts Fields

ABOUT THE AUTHOR

Stefan Venceljovski is a Political Science and Canadian history student at the University of Waterloo, studying international relations and policy from the Cold War period to today. His primary focus of research and study is the broader implications of historical narratives and trends on the modern world and how the shaping of our narratives impacts how we preserve our outcomes today. While focusing primarily on his current studies, he also gives his professional time to The Waterloo Historical Review. This on-campus, student-run, peer-reviewed journal looks to give publishing experience and credits to the University of Waterloo students in history. He also gives his time to the University of Waterloo Historical Society, an organization dedicated to bringing scholarship and discussions to UW history students. AI is particularly interesting for him because it has an unprecedented impact on future study, inquiry and dissemination of information and news within history and the broader discipline of international relations.

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Executive Summary

The Canadian government needs to recognize the potential of Artificial Intelligence (AI) for warfare and civilian applications. AI can potentially improve the Canadian military's speed, accuracy, and effectiveness in modern-day war zones and increase the effectiveness of civilian operations in disaster relief and handling other daily operations. However, using AI in these scenarios raises ethical, legal, and strategic concerns, many of which are not being discussed due to a lack of communication between Policy and AI scholars. This policy brief explores the benefits of creating a Canadian institute for AI research that would combine, on a national level, policy, computer science and engineering students to provide a more cohesive study of AI and its implications on legal, ethical and strategic grounds.

Background

1. Even at its basic level, AI technology involves using complex algorithms, machine learning, and automated processes to support decision-making, intelligence gathering and analysis.
2. At its basic level, policymaking involves complex checks and balances requiring multiple inputs from domestic, regional, and international actors and leaders and continuously adapting to those parties' changing political views. It also involves ensuring that most people see the most significant possible benefit at the expense of none or, at best, the very few. This often involves considerable deliberation, cooperation, and consideration to weigh any decision's possible outcomes and implications.
3. These two areas meet when AI technology is rapidly growing into a burgeoning industry that has not only civilian applications but potentially lethal military applications, and its creators do not have the tools to consider the implications of their creations. Policymakers, too, struggle to keep up with these evolutions as they understand little about the new technology and, therefore, either underestimate it or misunderstand how it works.

Issues:

4. From a policymaker's perspective, this lack of communication and cross-discipline coordination leads to increased fear of the new technology and gross misunderstandings of how it functions. This leads to slow policy changes, slow implementation, and a general fear of the technology. The issue arises that other countries are quickly overtaking Canada as AI leaders.
5. A lack of communication also leads some policymakers to disregard the potential of AI in civilian applications and the streamlining of processes. This disregard then hampers attempts to research these applications for Canadian uses.
6. From AI engineers' and computer scientists' perspectives, the lack of communication leads to an

exodus from the civil/government sector to the private sector, often to other countries, which results in a brain drain of Canadian talent and innovation.

7. It also leaves the door open for potentially dangerous technology to be created, sold, or stolen, as these creators lack the policy background to recognize the potential security threats that can arise from their creations.

A fundamental disconnect between policymakers and AI makers leads to a fractured atmosphere in Canada, severely hampering our ability to research, implement and regulate AI in any real, meaningful way.

Challenges:

8. Universities largely segregate the Arts from the STEM fields, which breeds little to no cross-discipline communication and a culture of superiority complexes and elitism in both fields that cause a further divide.
9. There is a fundamental lack of understanding of the policy implications for AI development and implementation, how AI functions, and what it means for a technology to be AI. AI schola, developers, and policymakers are guilty of this because of the above challenge and AI technology's uncontrollable and consistent evolution.
10. There is little to no organization of ART and STEM students and scholars in a centralized way that allows for cross-discipline communication and collaboration and the development of a more well-rounded policy and expertise.

Recommendations:

In the wake of the issues mentioned above and challenges, it is recommended that Canada:

11. Establish a well-funded and organized Canadian Institute for AI Research and Education: The Canadian government, along with the top STEM and ARTS universities, should work to develop a well-rounded, well-funded center for Canadian talent to freely research and develop new AI technologies and implementations in the form of a national institute. This institute would not only provide a space for Canadian talent to research and develop AI technologies for Canada in Canada freely. Still, it could also be a space for policy scholars to learn about AI and for scientists to learn about the policy used to regulate their creations. By fostering a space that allows for and encourages the cross-disciplinary study and conversation, Canada can improve its ability to remain competitive in a field that is quickly being seen as the next technological arms race while also maintaining its core principles and ethics by ensuring that those involved in AI are well educated and well rounded.
12. Develop clear and universal ethical guidelines: The Canadian government and education apparatus should develop clear ethical guidelines that outline the acceptable uses of AI in both civilian

and military applications. These guidelines should ensure that AI technology is consistent with international humanitarian law and human rights standards. It is crucial to regularly assess and revise the guidelines in light of technological progress and the shifting discourse on AI. To ensure adequate adherence and implementation, educating and instilling ethical guidelines among those involved in developing and monitoring AI systems, both human personnel and the AI itself, is essential.

13. Participate in international efforts to regulate AI: The Canadian government and educational institutions should participate in international bodies and treaties regulating AI use. By actively pursuing these treaties and spearheading the conversation internationally, Canada will develop a better sense of the direction that other nations and allies are taking regarding AI and will be able to position itself as a leader in technology while remaining in the know.

By implementing the above policy recommendations, the Canadian government can ensure that the use of AI is consistent with ethical principles, respects international law and human rights standards, and minimizes the potential risks associated with AI technology. It also means that Canada can spearhead the development of new technologies while safeguarding its unique position among top research sectors worldwide for AI. Continuing research into AI as a tool is needed, and it cannot happen with any meaningful impact without some cross-disciplinary study and conversation. If implemented, the above suggestions would ensure that conversations are possible and that Canada remains a leader in facilitating them.