Agenda

Day 1 – April 23, 2019

11:30am - Registration and Networking

Shaw Centre – 2nd floor, room 205/207

12:10pm

Mr. Gérald Cossette, Master of the Ceremony

Welcome

12:15pm

The Honorable Ahmed D. Hussen, Minister, Immigration, Refugees and Citizenship Canada

Opening of the Symposium

12:30pm

Mr. Gilles Savard, Director General, The Institute for Data Valorization (IVADO)

What Artificial Intelligence can bring to Government?

Mr. Gilles Savard will address the question of the importance of algorithmic (and artificial intelligence) for our future. He will look at the essential requirements governing the development of this technology in general and, more particularly, its development within government organizations. In fact, what path should we take to innovate government services, to use this technology that augments intelligence.

12:55pm

Mr. Marc Brouillard, Chief Technology Officer, Treasury Board Secretariat, Government of Canada

Treasury Board Secretariat and an Automated Future: Artificial Intelligence and the Public Service

Mr. Marc Brouillard will speak to the AI initiatives being undertaken by the government of Canada in particular its evolution and future direction. He will also outline the key features of the new Directive on Automated Decision-Making that took effect in April 1, 2019.

1:20pm

Mr. Jocelyn Maclure, Professor, Faculty of Philosophy, Laval University and President of the Commission de l'éthique en science et en technologie du Québec

The Ethical Framework of Artificial Intelligence: Why This Sense of Urgency?

The increased use of AI is a concern even though significant gains are being made. For many, this technology will profoundly change the way we do things, generating practices that are completely different from what we know, shaking up and hurting our environment. For others, these are only spectacular improvements, but improvements, in other words, change for the better. What is it exactly? M. Jocelyn Maclure will demonstrate why the public service AI community must consider ethical principles in their practice and outline their main features.

1:45pm

Mr. Luc Gagnon, Chief Technology Officer, Shared Services Canada

Artificial Intelligence enablers for the Government of Canada

As the Government of Canada is accelerating its utilization of AI algorithms to build digital solutions for his workforce and citizens, it needs to capitalize on emerging AI enablers that will empower Departments with the skills and tools to solve key challenges.

Government is facing the same challenges as the private sector with concerns such as lack of suitable data for creating AI capabilities and data science talent shortage.

In this presentation Mr. Gagnon with identify existing and promising key AI enablers the GC will put in place to deliver on its AI strategy.

2:10pm

Mrs. Lacey Batalov, Acting Director, Government Advisory Directorate, Office of the Privacy Commissioner of Canada

Artificial Intelligence and Privacy

Mrs. Batalov will provide an overview of key privacy considerations related to AI and an update on the Commissioner office's current work in this area.

2:30pm - Health Break and Networking

Shaw Centre – 2nd floor, outside rooms 205/207

2:50pm

Ms. Michelle Mann, A/General Counsel, Justice Canada & Mr. Robert Hersch, Lawyer, Justice Canada

Artificial Intelligence and Administrative Law - Artificial Intelligence – the Law and Practical Tips for the Artificial Intelligence Practitioner

Ms. Michelle Mann and Mr. Robert Hersch will examine the "problematique" by bringing together considerations related to administrative law, human rights, privacy protection (and data) law and commercial issues. Together with a technical understanding of automated decision-making systems that are powered by machine learning technology, they will identify key issues and challenges to be considered in this very novel and evolving area. They will also take us through some practical touch points to guide the Governments of Canada in its development and deployment of these systems.

3:15pm

Mr. Jose Fernandez, Associate Professor, Department of Computer Engineering and Software Engineering, Polytechnique Montréal

Artificial Intelligence and Cyber security: Challenges

Professor José Fernandez will address the issues of the cyber security, reliability and transparency of AI. Using the AI applications in cyber security as an example, he will describe the difficulties and challenges, both in terms of technology and governance, associated with the use of AI. These include the possibility of AI-based solutions to be "hacked" or otherwise manipulated, but also the lack of explanation provided that many Machine Learning-based AI solutions that can lead to unconscious bias, hidden manipulation and other undesirable socio-political consequences.

3:45pm

Moderator: Mr. Mark Robbins, Senior Researcher, Institute on Governance, Ottawa

Panel Discussion: Outlining/Exploring the Context for the Government of Canada

Panelists:

- Mrs. Alison Paprica, Vice President, Health Strategy and Partnerships, Vector Institute for Artificial Intelligence and Assistant Professor, Institute for Health Policy, Management and Evaluation, University of Toronto
- Mr. Phil Donelson, Public Sector AI Implementation, Element AI.
- Mr. Steffen Christensen, Senior Foresight Analyst, Horizons Canada
- Mr. Richard Evans, Director General, Industry Statistics, Statistics Canada

These days government is highly motivated to be more transparent, more objective and open by default. These initiatives all well pre-date the much more recent AI revolution and were designed with little consideration of it. Can we foresee problems with the newfound imperatives towards openness as it intersects with some of the security challenges particular to AI?

Many are quick to jump on the idea that AI is "biased" and that government should do something about this. Public perceptions may imagine the public administration being put into a deeply inappropriate role in AI governance. Where do you draw the line when it comes to define the public administration's role? In particular, when we consider most emerging technologies in the past, whether it be nuclear

energy, rocketry or even the steam engine, the government has been at the forefront of the development trajectory of that technology area. With AI, that is not the case.

Algorithmic intelligence is a technology that government could greatly benefit in particular for situations where there is an abundance of data and processes are slow. In fact, this makes government an obvious candidate for AI. What are the biggest obstacles to government adoption of AI from an operation standpoint? How much oversight is needed to ensure the safeguard of the public good? How algorithms are desirable to optimize “government decision-making processes". Can AI and Privacy Laws co-exist?

4:45pm - CLOSING REMARKS - An eye to tomorrow

Mr. Steffen Christensen, Senior Foresight Analyst, Horizons Canada

5:30pm - Networking

Lowertown Brewery

Day 2 – April 24, 2019

7:45am - Breakfast and Networking

Shaw Centre – 2nd floor, room 202/203/204

8:15am

Mr. Gérald Cossette, Master of the Ceremony

Opening - Day 2

8:20am

Ms. Lori MacDonald, Associate Deputy Minister, Immigration, Refugees and Citizenship Canada

Challenges We Are Facing

8:40am

Moderator: Mr. Brent McRoberts, President, BMCR Associates Inc.

Presentations and Discussion: Augmented Decision Making at Immigration, Refugees and Citizenship Canada

Discussions with:

- Mr. Hubert Laferrière, Director Advanced Analytics Laboratory, Immigration, Refugees and Citizenship Canada
- Ms. Amanda McPherson, Assistant Director, Digital Policy, , Immigration, Refugees and Citizenship Canada
- Ms. Petra Molnar, Lawyer and Research Associate, International Human Rights Program, University of Toronto, Faculty of Law

For many years, IRCC has been facing an ongoing and significant volume growth with temporary resident applications (visas for visitors, students and workers), in particular from China and India. Since traditional means to deal with pressures do not suffice, IRCC has been developing its advanced analytics capacity including predictive analytics and machine learning. In 2018, IRCC piloted a project to better support visitor's visa issuing process by using the new technology with a focus on risk triage and automated decision as a means to address ever-increasing temporary residence application volumes.

IRCC will expose the current ins and outs of the pilot Ms. Petra Molnar is a lawyer and researcher at the International Human Rights Program at the University of Toronto Faculty of Law. She is the co-author (with Lex Gill) of "Bots at the Gate: A Human Rights Analysis of Automated Decision-Making in Canada's Immigration and Refugee System." The report expressed concerns about the ramifications of using automated decision-making in the sphere of immigration and refugee law and policy.

9:45am - Health Break and Networking

Shaw Centre – 2nd floor, room 202/203/204

10:05am

Mr. Neil Bouwer, Vice President, Innovation and Policy Services Branch, Canada School of Public Service

Help Build Data Scientists for the Digital Age – Skills, Competencies and Curriculum

Neil will speak to how AI/ML and disruptive technologies are fueling the rapid acceleration of the amounts of data that is being generated, and what this transformation means for the public service. He will touch on some of the associated challenges, and how the public service will adapt, transform and leverage this data to better serve Canadians, foster growth and be a global leader in this area. To respond to these issues, he will discuss the importance of building and reinforcing strong digital competencies to work effectively in this changing environment, and provide examples of what the Canada School of Public Service is doing to support public servants in this digital realm.

10:20am

Ms. Anna Wong, Product Owner, Canada School of Public Service

WORKSHOP: Help Build Data Scientists for the Digital Age – Skills, Competencies and Curriculum

About the Digital Academy's Premium data analytics and AI/ML pilots - Lessons Learned and Best Practices

Data is exploding at an alarming rate - accelerated by digital technologies, devices and applications including AI/ML. It's creating a number of challenges, but do we have the skills and competencies in the Government of Canada to nimbly address them and get this right? Through an interactive, hands-on workshop, you will help the School to identify the skills, competencies, and curriculum needed to create strong data scientists to work effectively in this digital space. This is your opportunity to also hear from the Canada School of Public Service's senior leaders in this area. They will share lessons learned and best practices from their Digital Academy's Premium Pilot Program, specifically, the data analytics and AI/ML streams.

Activity 1: Self-assessment of skills and competencies

Data Analytics: https://forms.gle/VavP2Vk8Wvi3fMGc9

AI/ML: https://forms.gle/zfn1v3wop1HPPE3n6

Activity 2: Pilot curriculum - Participants in groups, review the overview of the pilot curriculum and one of the modules in depth

Overview: https://github.com/CSPS-EFPC-DAAN/Data-AI-ML/blob/master/Slides/0%20-%20Introduction.pdf

Individual modules: https://github.com/CSPS-EFPC-DAAN/Data-AI-ML/tree/master/Slides

Participants in the tables provide feedback via Google forms on, Learning objectives, Format and activities (lecture, lab-based, etc.), Medium of delivery (in-class, online, MOOC, blended, etc.) Length of delivery (weeks/months); and Intensity of delivery (part-time, full-time)

11:25am

Nöel Corriveau, Senior Advisor, AI Policy and Implementation, Treasury Board Secretariat

WORKSHOP: Algorithmic Impact Assessment Workshop

Noel will present the work currently being done by the Government of Canada regarding the responsible use of artificial intelligence and seek input from participants on the Government of Canada's Algorithmic Impact Assessment (AIA) Framework by organizing working sessions around specific use cases to test. Lastly, the workshop is an opportunity for TBS to Obtain feedback on the content, methodology, outcomes and user-experience of the AIA.

12:30pm - Lunch

Shaw Centre – 2nd floor, room 202/203/204

1:20pm

Mr. Mathieu Audet, Government of Canada Entrepreneur, Employment and Social Development Canada

Artificial intelligence practitioners in the Government of Canada

Though the Government of Canada (GoC) has a number of department and agencies involved in artificial intelligence (AI) related work, there is a limited understanding of the current GoC capacity as well as how to best develop, utilize, and grow AI across the GoC. As GC Entrepreneurs, we have taken this opportunity to work horizontally and provide a clear picture of the current state of AI capacity in the GoC. We conducted 25 interviews with teams representing 20 departments and agencies. These interviews reflect the experiences of approximately 350 AI practitioners. Our goal was not only to document the 'what is done with AI', but to understand the 'who' and the 'how'.

The presentation explores the tension between the opportunities and challenges relating to the use of AI in the GoC from the perspective of practitioners. It concludes by providing a number of recommendations that could help support the growth of the GoC AI capacity.

1:35pm

Mr. Mario Cantin, CEO and Chief Data Strategist, Prodago – Lean Data Governance

Artificial Intelligence and Data Governance: Are we AI ready?

Are we AI ready? That is the question that Mr. Mario Cantin will answer from a data management & governance perspective. Complex problems requires data and more: data that must be more diverse and comprehensive, triggering quality issues. And to properly train predictive model, data must be of high quality while at the same time the right data are used to develop the model. How can we proactively prepare to ensure a necessary state of readiness? Through a series of tangible practices, Mr. Cantin will show how data governance is a key pillar to support AI and digital transformation.

2:00pm

Workshop 1: Integrating artificial intelligence and big data in operations

Algorithmic Decision-Making Round Panel Table with:

- Mr. Stéphane Gagnon, Ph.D., Associate Professor, Department of Administrative Sciences, University of Québec, Outaouais
- Mr. Joseph Potvin, Executive Director, Xalgorithms Foundation
- Mr. Gregory Richards, MBA, Ph.D., FCMC, Adjunct Professor, Telfer School of Management, Ottawa University

Government services can be optimized using AI technologies, especially Machine Learning (ML), but also Text and Semantic Reasoning, Intelligent Agents, and many others. Implementation is also easier than ever thanks to in-memory Big Data platforms such as Apache Spark and Data Science related ecosystem. Yet while the "science and technology" is readily available, often open source, many challenges remain to overcome implementation.

Participants are invited to share their experience, concerns, and best practices in bringing ML and other AI technologies to optimize government services.

2:20pm

Workshop 2: Human-Centred Automation: Why and How

Algorithmic Decision-Making Round Panel Table with:

Mr. Joseph Potvin, Executive Director, Xalgorithms Foundation

The cognitive psychologist Lisanne Bainbridge opened her influential 1982 paper "Ironies of Automation" with an observation about the people involved: "The designer's view of the human operator may be that [s]he is unreliable and inefficient, so should be eliminated from the system. There are two ironies of this attitude. One is that designer errors can be a major source of operating problems. The second irony is that the person who tries to eliminate the operator still leaves him[her] to do the tasks which [s]he cannot think how to automate."

A computational algorithm is a precise and composable extension of human agency. By "agency", we mean the possession of intellectual and tangible faculty of action to pursue a specified result. By "algorithm", we mean a method invoked by a condition to obtain a specified result and then terminate.

Automation brings the agency of the responsible manager together with the agency of the algorithm designer. Who can/should/must over-ride whom, under what circumstances, based on what criteria? Whatever the answer, how can this be ensured?

3:20pm - Health Break and Networking

Shaw Centre – 2nd floor, room 202/203/204

3:50pm

Workshop 3: Analytics and intelligent solutions in governance

Algorithmic Decision Making Round Panel Table with:

Gregory Richards, MBA, Ph.D, FCMC, Adjunt Professor, Telfer School of Management, Ottawa University

Algorithmic Decision-Making brings a degree of automation and machine autonomy rarely seen before in government. It implies that we embed in our Machine Learning (ML) models, and our Business Rules, a whole range of policy insight and knowledge that is expected to function flawlessly in dealing with all cases, allowing agents to handle exceptions with better performance.

However, Public Administration as a discipline has always been focused on conformity, accountability, and assurance of the rule of law and quality standards. The ability of AI and algorithmic government to perform as well as people and teams on these criteria remains to be proven, especially with conflicting prerogatives as to whom may ensure the quality of AI and its decisions.

In light of recent litigations related to the use of AI in program delivery (e.g., Idaho State in K.W. v. Armstrong)i, this session aims to raise the key issues that will concern legislators and executives as more advanced technologies are implemented in government programs.

Participants are invited to share their experience, concerns, and best practices in modernizing our governance processes and practices while ensuring that AI remains legitimate and at the service of people and constituencies.

4:30pm

Gérald Cossette, Master of the Ceremony

PRESENTATION OF SYMPOSIUM HIGHLIGHTS

4:45pm – CLOSING REMARKS

Harpreet S. Kochhar, Assistant Deputy Minister, Immigration, Refugees and Citizenship Canada