

Canada-UK Colloquium - AI & Society: Risks, Choices, and Opportunities

UK Summary & Recommendations

Background

Established in 1971, the Canada-UK Colloquium is an annual forum to discuss public policy issues of particular importance and topicality for both countries. Every year, it brings together some fifty Canadian and British parliamentarians, public servants, academics, journalists, business leaders and young scholars, to foster practical knowledge-sharing and encourage constructive collaboration. Meetings take place alternately in Canada and UK. Over the past four decades, the CUKC has been consistently endorsed by the Prime Ministers of both countries. It is actively supported by the Foreign and Commonwealth Office in UK and by the Department of Global Affairs in Canada.

The 2018 colloquium took place at the Munk School of Global Affairs and Public Policy at the University of Toronto from 23-25 November. It focused on the public policy implications of the AI revolution, both at individual and societal levels. Key topics included the development and application of Deep Learning, implications of big data and privacy and the use of AI in defence, security and policing. Special attention was also paid to science & AI, implications for the labour market and social inequality, legal liability, new regulations, and ethical considerations.

Canada and the UK are already leaders in AI research and development. The Colloquium brought together experts to discuss ways in which both governments could mitigate the risks associated with AI while maximizing benefits of new technological developments.

Public engagement.

The intense hype around artificial intelligence (AI) has led many people to equate recent successes in targeted machine learning, supervised learning and deep learning – comprising weak AI – with an imminent move to wide deployment of strong or general-purpose AI. This is damaging on three levels. First, there has been exaggerated concern about potential job losses, alongside too little acknowledgement of the new or shared roles and jobs being created. The growing influence of both nativism and populism threatens to yet further distort public perception by increasing the fear of automation. Second, the inevitable failure to deliver early progress in general-purpose AI is likely to generate disillusionment and a potential squeeze on fundamental AI research funding. Finally, misunderstanding of AI complicates the effort to prepare the social, legal and economic foundations for an intelligent digital future and the eventual development of strong AI.

Recommendation 1:

A consortium of universities, professional bodies and leading data science companies from Canada and the UK should mount a sustained media campaign to explain what the current generation of weak AI systems can and cannot achieve. The campaign needs to use language that is accurate, clear, specific, consistent and simple for the public to understand. It should address openly and honestly the likely employment implications and the actions that can be taken to mitigate negative impacts. This should build on the experience of the UK Royal Society's *AI for You* and *AI and Work* campaigns and the similar work in Canada by CIFAR.

Sorting out the foundations.

We must transition from high level ethical and regulatory principles to implementation, assurance, and compliance; from theoretical 'codes' to a practical toolbox for developing AI, including general policy, ethical design principles, regulation, incentives, liabilities and

insurance. There are gaps in the current legal, financial, ethical and regulatory frameworks which will become increasingly evident as we move to a more fully digital economy. Coordination amongst policymakers and regulators is essential to ensure there is policy coherence in the approach.

Recommendation 2:

Urgent proposals should be developed to establish:

- Practical applications of the AI ethical principles currently being widely debated in the UK, Canada and the EU. The UK Royal Academy of Engineering (RAEng) and the Canadian Academy of Engineering (CAE) should be asked to make proposals as to how these principles can be engineered into real systems.
- Clear guidance for methods to assess whether companies and applications are subscribing to particular ethical principles. This could take the form of audit, self-assessment, kitemarking, or verification by regulators, as appropriate, and could be of use for procurement decisions and consumer choices.
- A UK-Canadian work stream on the regulatory implications of information privacy. Personal privacy should be balanced against broader societal needs in areas such as medical research, but underpinning protections will be essential. This work should be carried out jointly by the Office of the Canadian Information Commissioner and the UK Information Commissioner's Office.
- The authenticity (or otherwise) of electronic evidence in criminal and civil legal proceedings. Without this the presumption of innocence will be progressively eroded, by the (inaccurate) presumption that computer-based evidence is 'reliable'. The professional legal bodies in the UK, alongside the Federation of Law Societies of Canada, together with leading jurists in the field of electronic evidence, should carry out the work jointly.
- Liability. For example, is there scope for no fault compensation schemes where re-identification of sensitive (for example medical) data has led to personal harm? Both the UK and Canada have publicly-funded health systems which could provide an appropriate context for such an assessment. This work could be carried out jointly by the professional legal bodies in the UK and the Federation of Law Societies of Canada.
- A UK-Canadian initiative on assessing the financial value of the data assets which contain the training data sets used in Machine Learning, which need to be appropriately accounted for on public and private sector balance sheets and subject to strong financial and data security disciplines. This work should be carried out jointly by the Institute of Chartered Accounts of England & Wales (ICAEW) and the Canadian Institute of Chartered Accountants (CICA).

Developing a new social contract.

There is increasing concern around the world regarding the uneven distribution of benefits both from globalisation and the application of new technologies. It will be important to ensure that the application of AI does not add to these disparities. Decisive action will be required to ensure the economic and productivity dividend from applications of AI are shared across society.

Recommendation 3:

New work horizons enabled by AI should be explored, including the possible move to a four-day working week. This could build on suggestions already made in the UK by the National

Endowment for Science & Technology (NESTA) and involve Trade Union and business organisations from both countries under the leadership of the national Academies.

Engineering the infrastructure.

Machine Learning depends on the availability of the very large datasets required to train systems. At present, much important data is held in poorly-defined data structures with limited metadata and is of questionable quality. Such datasets are particularly problematic to develop and maintain in areas such as defence and national security, They are also often unrepresentative of diversity of gender, age, ethnicity, socio-economic class. A broad reference data architecture should be developed to ease conversion between the different data architectures used in a variety of sectors and to maximise value as new data assets are developed. This development should include the necessary ethical and privacy control structures and will need to be extended to engage both China and the USA given the global nature of these challenges. It will also be important to continue to support the other sciences and technologies that are essential for Machine Learning and AI to succeed (sensors, batteries, dynamics user interfaces, cloud services, data management etc.).

Recommendation 4:

A Canada-UK working group should be formed to address the challenge of creating the right infrastructure to enable access to datasets, building on existing research into Data Trusts, and drawing resources from CIFAR and the UK Alan Turing Institute as well as the three leading Canadian AI research centres. The UK-Canada Public Policy Forum established by the two Prime Ministers should oversee this work.

A new approach to education and multi-disciplinary working.

Education must evolve. What curriculum will best prepare young people for an AI-based future? How should university curricula and research funding change to reward the multi-disciplinary work essential to the successful development of Machine Learning and AI systems? For life-long learning, what skills will be needed and what incentives will there be to retrain and thrive in a world of AI and automation? In all these contexts, how can AI help to tailor the educational experience to individual need? Finally, how will all this effort be funded? The public and private sector need to work together to develop a new roadmap for education.

Recommendation 5:

A major project should be led by the two education ministries, engaging with other appropriate government departments, universities, and the private sector to make detailed proposals for an updated roadmap for education, drawing on both UK and Canadian experience. It should focus in particular on the specific training requirements of multi-disciplinary working (training, that is, on the leadership of teams that will need to include computer scientists, engineers, mathematicians, statisticians and other specialists). It should also consider the purpose of education aside from preparing people for work, and how to deliver that.

Bridging the gap between fundamental research and commercial exploitation

Applied research and software development needs to be accelerated. Companies looking to adopt AI or develop AI applications need tools they can use to develop and customise AI functions as well as to collect and manage data. Canada and UK are both developing 'AI hubs' consisting of start-ups and SMEs working alongside universities with large tech

companies acting as “anchors” (attracting talent and helping carry the risk of translating academic discoveries into useable software).

While a degree of regulation can be positive for innovation when the regulation is clear and consistent, over-regulation quickly comes to represent a hidden tax. Small companies may not have sufficient resources to address complex and possibly conflicting laws from many jurisdictions. Some technologies are covered by existing laws, rules, regulations, and mechanisms. There is scope for the two countries to exchange experience and ideas in this field.

Recommendation 6:

The UK and Canadian governments both need to support the establishment of AI hubs, also seeking to eliminate factors that inhibit local businesses from scaling-up globally. The respective governments should create opportunities to share knowledge and best practice in regulation and debate the challenges that arise from differences in regulation across jurisdictions.

In summary, the breadth and depth of the effect of AI on society is too great simply to step back and see what happens. We cannot plan the journey, but we must build regulatory and ethical frameworks to guide our steps and minimise the chance of accidents.

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