September 26, 2018

Submission of BSA | The Software Alliance to the Standing Committee on Industry, Science and Technology Regarding the 2018 Statutory Review of the Copyright Act

BSA is the leading advocate for the global software industry before governments and in the international marketplace.[1] Our members are at the forefront of software-enabled innovation that powers the global economy and helps businesses in every industry compete more effectively. Because copyright policy is a critically important driver of software innovation, we are deeply appreciative for this opportunity to provide comments as part of the Committee's review of the Copyright Act.

This review comes at a timely moment. With the recent announcement of the Pan-Canadian Artificial Intelligence Strategy, Canada has staked out an ambitious goal of becoming a global leader in the development of AI. The impetus for this bold undertaking is understandable. Economists estimate that by 2030 AI could boost global GDP by more than $15 trillion with benefits flowing to every industry sector.[2] Positioning Canada to capture the value and benefits of AI is a sound investment. And, Canada is indeed investing heavily in efforts to increase the pipeline of top-tier AI talent and support a robust research agenda that will deliver socio-economic benefits for Canada.[3] BSA members are also betting on Canada's AI potential, with significant investments in research facilities and commercial operations that span across the country.

This Committee has a critical role to play in helping realize this vision.

To become a global leader in AI, Canada has recognized that it must attract the best AI talent and the investment capital required to fund both research and commercialization.[4] A critical competitive factor is access to data. AI research requires access to large amounts of data so that software can be trained to recognize objects, interpret text, listen and respond to the spoken word, and make predictions. Ensuring that Canadian researchers can compete with their counterparts in other leading AI nations – including the United States and Japan –

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[1] BSA's members include Adobe, ANSYS, Apple, Autodesk, Bentley Systems, Box, CA Technologies, CNC/Mastercam, DataStax, DocuSign, IBM, Informatica, Microsoft, Okta, Oracle, salesforce.com, SAS Institute, Siemens, PLM Software, Splunk, Symantec, Trimble Solutions Corporation, The MathWorks, Trend Micro, and Workday.

[2] https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf.

[3] https://www.cifar.ca/ai/pan-canadian-artificial-intelligence-strategy.

[4] https://www.theglobeandmail.com/report-on-business/rob-commentary/artificial-intelligence-is-the-future-and-canada-must-seize-it/article33532668/.

therefore requires a careful examination of government policies that impact their ability to access data.

Copyright is one such policy. As currently enacted, Canada's Copyright Act creates uncertainty about the legal implications of key analytical techniques, such as text and data mining and machine learning, that are foundational to the development of AI. Accordingly, to help realize Canada's strategy for becoming a global leader in AI and to facilitate the many societal benefits of AI, we urge the Committee to recommend the adoption of an express exception to ensure that copying a lawfully accessed work for the purpose of "information analysis" is not infringing.

The Promise of AI in Canada

Advances in AI and software-enabled data analytics are fueling job and economic growth in Canada, improving how businesses in every sector operate, and producing real societal gains. In high-tech and low-tech industries alike, the analysis of data has made Canadian businesses more agile, responsive, and competitive, boosting the underlying productivity of many key pillars of the economy.

AI innovation is stimulating growth across all industry sectors as businesses, big and small, use AI to improve supply chains, secure their networks, and evaluate how to improve their products and services. There are numerous examples of this positive impact across a wide swath of industries in Canada, for instance:

- **Healthcare.** In the healthcare sector, experts predict that AI will improve patient outcomes by 30 to 40 percent. Doctors at the University of Montreal's Institute for Research in Immunology and Cancer are already using AI to explore the human genome to unlock insights that may enable earlier diagnoses.[5]
- **Agriculture.** AI is helping Canadian farmers increase crop yields while reducing their environmental impact through precision farming techniques that harness historical climate and agricultural data to optimize land use.[6] The Government of Canada recently announced the formation of a Protein Industries Supercluster in the Prairies in an effort to increase the value of Canadian crops through the adoption of AI for improved nutrient and crop management.[7]
- **Financial Services.** The Royal Bank of Canada recently launched an AI research lab to explore how it can best leverage the technology to combat fraud and improve customer service.[8]
- **Data Protection.** Researchers at the University of Toronto have used artificial intelligence to automatically scour privacy policies of hundreds of mobile applications with the goal of making undisclosed data collection practices more transparent – and, by extension, demonstrating how AI can enhance both the enforcement of Canadian privacy laws and consumer confidence in digital technology.[9]

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[5] https://ww2.frost.com/news/press-releases/600-m-6-billion-artificial-intelligence-systems-poised-dramatic-market-expansion-healthcare.
[6] http://www.canada.ai/posts/get-ready-for-the-internet-of-cows-farmers-use-technology-to-shake-up-agriculture.
[7] http://www.ic.gc.ca/eic/site/093.nsf/eng/00012.html.
[8] https://vancouversun.com/news/local-news/rbc-launches-new-lab-for-artificial-intelligence-and-machine-learning.
[9] https://www.cbc.ca/news/technology/app-privacy-policy-apptrans-uoft-third-parties-ads-code-1.4791834

More than simply benefitting from the adoption of AI, Canadian innovators are on the leading edge in shaping the development of the technology. In fact, many of the recent breakthroughs in AI can be traced back to the trailblazing work of a trio of Canadian computer scientists whose research in the 1980s laid the foundations for today's "deep learning" techniques.[10] Canada's leading academic institutions continue to develop world class tech talent. In addition to supporting many domestic technology companies, Canada's deep well of AI experts is also a major draw for foreign direct investment that is contributing to economic growth and job creation. In 2017, Toronto was the fastest-growing tech market in North America, with a 52% surge in jobs over the past five years.[11]

Providing Legal Certainty for Canada's AI Investments

The machine learning processes that power AI development depend on access to vast quantities of data. AI systems are "trained" by ingesting large data sets in order to identify underlying patterns, relationships and trends that are then transformed into a mathematical model that can make predictions based on new data inputs. For instance, developers have now created a "Seeing AI" app that helps people who are blind or visually impaired navigate the world by providing auditory descriptions of objects in photographs.[12] Users of the app can use their smartphone to take pictures, and Seeing AI describes the people and objects in the photograph. To develop the computer vision model capable of identifying the objects in a picture, the system was trained using data from millions of publicly available images depicting thousands of common objects, such as trees, street signs, landscapes, and animals.

As this example highlights, the benefits of AI are dependent on the quantity and quality of data that is available for training. Government policies affecting the ability of researchers to access data therefore have a significant influence on the development of AI. Because the machine learning process can involve the temporary creation of machine-readable copies of works, difficult legal questions can arise about the potential copyright implications of those reproductions.

However, machine learning should not be considered a copyright-relevant act. Copyright law was never intended to prevent users from analyzing a work to which they have lawful access in order to derive factual, non-copyrightable information. Once lawful access to a work is obtained, it should not matter whether a user analyzes the material manually or extracts the underlying factual information through a digital process. The reproductions that are incidental to the machine learning process are unrelated to the creative expression that copyright is intended to protect, are not visible to humans, and do not compete with or substitute for any of the original works. In other words, when machine learning is performed on lawfully accessed works, it has no impact on the legitimate interests of any copyright owner.

Recognizing that not all uses of copyrighted works should require permission, the Copyright Act includes several exceptions that arguably might cover certain forms of information analysis and machine learning. However, because the Copyright Act currently lacks an express exception to enable informational analysis, there is considerable uncertainty about the scope of activity that

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[10] https://www.canadianbusiness.com/innovation/rbc-brain-drain-deep-learning/.

[11] www.canada.ai/posts/who-just-beat-the-bay-area-in-tech-jobs-toronto.

[12] https://enterprise.microsoft.com/en-ca/articles/blog/the-future-is-now-for-ai-innovation-in-canada/.

is permitted under the law. This uncertainty poses a risk to the significant investments Canada is making to transform the AI research sector into an economic engine and provides a competitive advantage to those countries – including the United States and Japan – which do not have this uncertainty.

AI and Copyright – International Developments

Canada is by no means alone in its AI ambitions. Over just the past 18-months, more than two dozen countries have published national strategies or roadmaps to outline policy approaches designed to give their AI industries a competitive advantage.[13] Because data is so crucial to the development of AI, it is no surprise that many of these plans involve a close examination of how strategic data sets can be made more widely available.

There is an increasing global awareness about the need to modernize copyright laws to facilitate the development of AI. Japan first recognized such a need in 2009 when it amended its Copyright Act to create an explicit exception for reproductions that are created as part of an "information analysis" process.[14] Although the 2009 amendment is heralded as having transformed Japan into a "machine learning paradise," the Japanese Diet made further revisions to the Copyright Act earlier this year in order to further expand the exception.[15] On May 28, the Japanese Diet passed the Copyright Law Amendment Act, broadening the existing exception to allow for the "exploitation" of any copyrighted work for the purpose of performing "information analysis," including the "extraction, comparison, classification, or other statistical analysis of language, sound, image, or other elements of which a large number of works or a large volume of information is composed." [16] In addition to creating a general purpose exception for non-consumptive uses of copyrighted works, the recent amendment package also authorizes beneficiaries of the information processing exception to make limited public uses of the underlying works, such as the display of snippets.[17]

Japan is not alone in providing limitations and exceptions necessary for the development of AI. In the United States, courts have confirmed that, under the "fair use" doctrine, incidental copies of a work made in the course of informational analysis are non-infringing, even where the analysis is performed for commercial purposes. Singapore and Australia are considering the adoption of similar exceptions. The European Parliament also recently voted in favor of a new copyright provision that would provide Member States with the flexibility necessary to create broad exceptions for information analysis.

Clearing the Path for Canada's AI Ambitions

By recommending the adoption of an express exception in the Canadian Copyright Act to cover copying of a lawfully accessed work for the purpose of "information analysis," this Committee

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[13] https://medium.com/politics-ai/an-overview-of-national-ai-strategies-2a70ec6edfd.
[14] Article 47 septies, www.cric.or.jp/english/clj/cl2.html.
[15] https://translate.googleusercontent.com/translate_c?depth=1&hl=en&rurl=translate.google.com&sl=ja&sp=nmt4&tl=en&u=https://rclip.jp/2017/09/09/201708column/&xid=17259,15700023,15700124,15700149,15700168,15700186,15700190,15700201,15700208&usg=ALkJrhji5IUKR5c-HkERf4H2hxESDXQ1Ag.
[16] See http://www.mext.go.jp/b_menu/houan/kakutei/1405195.htm at Article 30-4.
[17] *Id.* at Article 47-5.

can play a critical role in helping advance Canada's strategic vision on AI. Importantly, such an exception is consistent with Canada's international obligations. The TRIPs agreement and Berne Convention require Member States to ensure that exceptions to copyright are confined to "certain special cases which do not conflict with the normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the rights holder."[18] An exception to facilitate information analysis of lawfully accessed works is consistent with this requirement.

Copyright is ultimately intended to provide incentives for the creation of new works. Exceptions to copyright are an important part of this incentive structure, particularly when they advance critical public interests and enable uses that would otherwise be prevented due to prohibitive transactions costs. An exception for information analysis to facilitate machine learning achieves each of these objectives.

To ensure that Canada's significant investments in AI will pay dividends long into the future, we urge the Committee to use this copyright review process to recommend the adoption of a new express exception for reproductions of lawfully accessed works that are made as part of an information analysis process, such as machine learning.

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[18] TRIPs Article 13.