AI Policy

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Abstract

AI Policy is a regular column in *AI Matters* featuring summaries and commentary based on postings that appear twice a month in the AI Matters blog (https://sigai.acm.org/aimatters/blog/).

Introduction

In this installment of the AI Policy column, I review the exciting (unprecedented) events since the Winter 2017 issue of AI Matters. New administration, executive orders, uncertainties – who knew AI Policy would be such a hot area?! This issue covers the following:

- the new SIGAI policy statement,
- suggestions, and request for discussion, of appropriate policy areas for AI, and
- potential issues concerning AI and jobs.

I welcome everyone to make blog comments to enrich our knowledge base of facts and ideas that represent SIGAI members.

Progress on a SIGAI Policy Statement

As a result of concerns about the new administration's executive orders on travel, the ACM and AAAS published statements that included general positions on the nature of scientific work and the need for freedom in research and communications. The following draft statement was discussed by the SIGAI executive committee and in responses to blog posts requesting input. The following statement has been submitted to the USACM for permission to disseminate the SIGAI position:

> The ACM SIGAI executive committee shares the view of its parent organization that "the open exchange of ideas and the freedom of thought and expression are central to the aims and goals of ACM. ACM supports the statute of International Council for Science in that the free and responsible practice of science is fundamental to scientific advancement and human and environmental well-being. Such practice, in all its aspects, requires freedom of movement, association, expression and communication for scientists. All individuals are entitled to participate in any ACM activity." SIGAI is working on policies to support inclusive participation in our AI-related activities. We encourage event organizers to share their efforts and experiences with us through our *AI Matters* newsletter at aimatters@sigai.acm.org and blog postings at https://sigai.acm.org/aimatters/blog/.

AI and Employment

A position seen in the media is that, just like other technological revolutions, new jobs will be created to replace the old ones. But is this a rationalization? Maybe the rate of technological change is of a different order in the AI and Big Data age compared to the industrial revolution. A more optimistic outcome than automation leading to mass unemployment is to see these technologies as a tool that will allow people to achieve more; for example, working together with cognitive assistants. So, which way will it be?

MIT economist Erik Brynjolfsson and co-author Andrew McAfee, in "The Second Machine Age", explore the question of what jobs will be left once software has perfected the art of driving cars, translating speech, and other tasks once considered the domain of humans. Along with the impacts of AI R&D, the rapidly emerging field of data science, spawned by the ubiquitous role of data in our society, is producing tools and methods that surpass human ability to manage and analyze data. Some researchers estimate that 50% of total US employment is in the high-risk category, meaning that associated occupations can potentially be automated. In the first wave, they predict that most workers in transportation and

logistics occupations, together with the bulk of office and administrative support workers and labor in production occupations, are likely to be substituted by computer capital.

Policymaking will no doubt lag behind the technology. Now is the time to discuss and advocate policies that address innovating our education systems, redefining employment, and investigating alternate economic systems. A goal for future AI Matters blog postings is to monitor countries and individuals who are thinking about and experimenting with alternate ways to address the ongoing advances in AI R&D and their impacts on employment that are already being seen.

Policy Areas Relevant to AI

At the time of writing this column, we await information on the current administration's policies on science, and particularly on perspectives on AI. The Obama administration released the reports *Artificial Intelligence, Automation, and the Economy* and *Preparing for the Future of Artificial Intelligence*. Potential implications of AI for society include the speed of change due to advances in technology; loss of control and privacy; job destruction due to automation; and a need for laws and public policy on AI technology's role in the transformation of society. An important point is that, compared to the industrial revolution, AI's impact is happening much faster and at a much larger scale of use than past developments. We see increasing evidence that nongovernmental organizations are recognizing the likelihood of disruption of operations that will happen whether or not change is intentional and planned.

In our current political environment, not much information is available about the new administration's understanding of AI technology and the need for policies, laws, and planning. Appointment to key administrative positions have yet to be made, and the status of the White House Office of Science and Technology Policy is not available on the Website. AI technology and applications will continue to grow rapidly, but whether or not public policy will keep pace is in doubt. The administration may take the position that AI will not cause job losses for many decades, and that perspective could distort assumptions about labor market trends and lead to policy mistakes.

At the recent AAAS Science and Technology Policy Forum, Matt Hourihan, who runs the R&D Budget and Policy Program at AAAS, gave preliminary perspectives on the next federal budget's impact on R&D. He compared the responses by Congress in previous administrations; for example, bipartisan pushback on efforts to reduce NIH budgets. He also discussed the relative emphasis in administrations on applied vs. basic research funding in non-defense spending, and the possibility of reducing applied funding in the next budget. Key slides and details from his presentation are available and links are in the Resources section below. Hourihan says, "In fact, there is a strong argument to be made that the first Trump Administration budget is the toughest of the post-Apollo era for science and technology, even with substantial information gaps still to be filled in." While still awaiting details, "the picture that *does* emerge so far is one of an Administration seeking to *substantially* scale back the size of the federal science and technology enterprise nearly across the board – in some cases, through agency-level cuts not seen in decades."

A goal for this column and blog posts is to monitor the administration's movement toward AI policies, development of budget policies that impact science and AI in particular, and the trends in R&D and its impacts on individuals and society. As always, input from the SIGAI membership is most welcome.

Upcoming

The theme for the SIGAI Public Policy posts for May is "Relevant Policies for AI R&D." We will look at potential policies today that could anticipate impacts of policies, or lack of policies, on progress in research on AI and preparation for the impacts of AI on individuals and society. Policy areas include budget allocation, anticipation of future employment, and the combined impacts of AI and data science. We welcome your input and discussion at the AI Matters blog!

Resources

- AAAS: https://www.aaas.org/program/center-science-policy-and-society-programs

- Artificial Intelligence, Automation, and the Economy: https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/Artificial-Intelligence-Automation-Economy.PDF
- Whitehouse Report on the Future of AI: https://obamawhitehouse.archives.gov/blog/2016/10/12/administrations-report-future-artificial-intelligence
- Preparing for the Future of Artificial Intelligence: https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf
- DC Data Science, AI, and Policy: http://www.datacommunitydc.org/data-science-dc/
- Ajay Agrawal, Joshua Gans, and Avi Goldfarb. The Obama Administration's Roadmap for AI Policy: https://hbr.org/2016/12/the-obama-administrations-roadmap-for-ai-policy
- The Second Machine age: http://secondmachineage.com/
- Human Work in the Robotic Future, Policy for the Age of Automation: https://www.foreignaffairs.com/articles/2016-06-13/human-work-robotic-future
- De Lange Conference on Humans, Machines, and the Future of Work: http://delange.rice.edu/index.html
- Artificial Intelligence and Life in 2030: http://ai100.stanford.edu/2016-report
- Matt Hourihan, AAAS, on The Ups and Downs of the U.S. Science Budget: https://www.aaas.org/blog/member-spotlight/matt-hourihan-ups-and-downs-us-science-budget
- AAAS reports and slides on the R&D Budget and Policy: https://www.aaas.org/program/rd-budget-and-policy-program
- AAAS, The Trump Administration's Science Budget: Toughest Since Apollo?: https://www.aaas.org/news/trump-administrations-science-budget-toughest-apollo
- AAAS, First Trump Budget Proposes Massive Cuts to Several Science Agencies: https://www.aaas.org/news/first-trump-budget-proposes-massive-cuts-several-science-agencies

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[a] http://www.humai.org/humai/ and http://humac-web.org/