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House of Representatives

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

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November 8, 2019

The Honorable Kelvin K. Droegemeier
Director
White House Office of Science & Technology Policy
1650 Pennsylvania Avenue N.W.
Washington, D.C. 20504

Dear Director Droegemeier,

As Chairwoman of the House Committee on Science, Space, and Technology, I wish to provide comments in advance of the President's Council of Advisors on Science and Technology (PCAST) open meeting on November 18, 2019.[1] I understand that PCAST will use this meeting to identify science and technology issues to address as well as priorities for future work. Among numerous issues, the Committee on Science, Space, and Technology is dedicated to the ethical use of rapidly developing technologies and the advancement of rigorous scientific research and standards.

Recent developments in machine learning algorithms, combined with increasing computing power and data generation, have enabled rapid advances in the accuracy, efficiency and applicability of artificial intelligence (AI) systems. While these systems can be a powerful tool for good, they also carry risks. Sometimes AI systems break. Modern machine learning depends on large training datasets, and algorithms can experience problems when confronting new circumstances that extend beyond the bounds of their training. This may, for example, lead a voice-recognition algorithm to fail in recognizing accented speech. If there are errors in the original training data, those errors get propagated and even amplified by the algorithm.

AI systems can also exacerbate existing inequities in our society. Algorithms do not have an agenda; instead, the humans behind them unwittingly introduce societal and personal biases and perspectives into the design and use of AI, leading to discriminatory decision-making and untrustworthy results. As discussed during our June 26, 2019 hearing, "*Artificial Intelligence: Societal and Ethical Complications*," these systems have been shown to exhibit gender discrimination when displaying job ads, racial discrimination in predictive policing, and socioeconomic discrimination when selecting which zip codes to offer commercial products or services.[2] Facial analysis technologies can be an important tool in helping law enforcement

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[1] https://www.govinfo.gov/content/pkg/FR-2019-10-30/pdf/2019-23624.pdf?utm_campaign=subscription%20mailing%20list&utm_source=federalregister.gov&utm_medium=email
[2] https://science.house.gov/hearings/artificial-intelligence-societal-and-ethical-implications

particularly bad at recognizing African Americans and other ethnic minorities, women, and young people, often misidentifying or failing to identify them. Similarly, skin cancer diagnostics programs only trained on light-skinned data sets will fail on darker-skinned patients.

We know that these risks exist. What we do not fully understand is how to mitigate them. Well before AI systems are fully deployed in our society, there are many ways in which ethical considerations can be integrated in the research and design processes, as well as the education and training of the scientists and engineers that develop and deploy these systems. To that end, there has been a proliferation of general AI ethics principles by companies and nations alike. But while the United States has endorsed an international set of principles for the responsible development of AI, the hard work will be translating these principles into concrete, effective action.

Current efforts are inadequate. The White House issued an executive order on Maintaining American Leadership in AI and updated the 2016 National Artificial Intelligence Research & Development Strategic Plan. These are important steps. However, while some of these efforts have cited ethical challenges, they have not made technology ethics a priority. These documents treat ethics as an add-on rather than an integral component of all AI research and development.

Part of PCAST's role is to build consensus within the scientific community, especially when science and technology policy issues are highly controversial, highly visible to the public, and involve multiple agencies. For example, PCAST released a report in September 2016 that provided recommendations to help ensure the validity of forensic evidence used in the Nation's legal system.[3] As noted in our September 10, 2019 hearing, *"Raising the Bar: Progress and Future Needs in Forensic Science,"* the criminal justice system relies on forensic evidence to identify and prosecute criminals and exonerate the falsely accused.[4] There have already been hundreds of documented cases in which forensic evidence was misapplied to convict the innocent,[5] and there are likely thousands of more such cases that haven't yet been documented. PCAST's report on forensic science was an important reminder of how much work was yet to be done. I believe that PCAST is similarly uniquely situated to advise the President and Congress on how Federal agencies can protect society against the intended and unintended misuse and abuse of AI.

Ethics must be integrated at the earliest stages of AI research and education and continue to be prioritized at every stage of design and deployment. If our Nation leads in the responsible development of AI, we can help set the standards and norms the rest of the world will follow. I ask that you consider this as you meet next week to set priorities for PCAST's future work.

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[3] https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf

[4] https://science.house.gov/hearings/raising-the-bar-progress-and-future-needs-in-forensic-science

[5] https://www.innocenceproject.org/all-cases/#

Pursuant to Rule X of the U.S. House of Representatives, the Committee on Science, Space, and Technology is delegated full legislative and oversight jurisdiction over the Office of Science & Technology Policy, as well as oversight jurisdiction over all laws, programs, and Government activities relating to nonmilitary research and development.[6]

Thank you for your attention to these matters.

Sincerely,

Eddie Bernice Johnson
Chairwoman
Committee on Science, Space, and Technology

CC:

Frank D. Lucas
Ranking Member
Committee on Science, Space, and Technology

[6]Rule X, Organization of Committees, U.S. House of Representatives, accessed here: https://www.govinfo.gov/content/pkg/HMAN-115/xml/HMAN-115-pg441.xml