



Department of Energy
Office of Science
Washington, DC 20585

Office of the Director

October 25, 2019

Professor Daniel Reed
Chair, Advanced Scientific Computing Research Advisory Committee
University of Utah
Salt Lake City, Utah 84112

Dear Professor Reed:

The Office of Science provides the largest and most diverse suite of scientific user facilities in the world – including the world’s most capable high performance computing facilities. Planned upgrades will dramatically increase the amount of data produced across the SC scientific user facilities. Artificial Intelligence and Machine Learning (AI/ML) have the potential for providing new insights and even new discoveries from this data, including the correlation of experimental and computational data. However, the technical aspects of “AI/ML for Science” may be more challenging than currently envisioned. Over the last few years, several workshops and subcommittee reports have identified and enumerated the scientific opportunities and some challenges from the intersection of AI/ML with data-intensive science and high performance computing.

By this letter I am charging the Advanced Scientific Computing Advisory Committee (ASCAC) to assemble a sub-committee to look at the outputs from these activities and to analyze the opportunities and challenges for the Office of Advanced Scientific Computing Research (ASCR) and the Office of Science associated with Artificial Intelligence and Machine Learning. Specifically, I would like the sub-committee to deliver a report that:

- Assesses the opportunities and challenges from Artificial Intelligence and Machine Learning for the advancement of science, technology, and Office of Science missions.
- Identifies strategies that ASCR can use, in coordination with the other SC programs, to address the challenges and deliver on the opportunities.

Due to the cross-cutting nature of this effort, in assembling this subcommittee, please include members of, and recommendations from the other Office of Science Federal Advisory Committees, as well as Industry and other Federal experts.

We would appreciate the committee’s preliminary comments by May 2020 and a final report by August 2020. I appreciate ASCAC’s willingness to undertake this important activity. Your consideration on these issues will be an essential input to planning at the Department.



If you have any questions regarding this matter, please contact either Barbara Helland, the Associate Director of the Office of Science for ASCR or Christine Chalk, the Designated Federal Official for the ASCAC.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Fall". The signature is stylized with a large, circular initial "C" and a long, sweeping horizontal stroke extending to the right.

Chris Fall
Director
Office of Science