

ASCAC Subcommittee on: 'AI/ML, Data-intensive Science and High-Performance Computing'

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Use shorthand: Subcommittee on 'AI for Science'

The Charge Letter:

- The letter sets the context of the challenge to the subcommittee:
 - 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.
- The letter requires the sub-committee 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.
 - Notes that, due to the cross-cutting nature of this effort, in assembling this subcommittee, we need to include members of, and recommendations from the other Office of Science Federal Advisory Committees, as well as Industry and other Federal experts.

Proposed Membership of the Subcommittee

ASCR Members – Jack Dongarra, +?

AITO – Fred Streit

HPC, AI and Big Data academic members:

- Dan Stanzione (TACC)
- Geoffrey Fox (Indiana)
- Joel Saltz (Stony Brook)
- Phil Bourne (Virginia)

Representatives from other Office of Science Advisory Committees:

- HEPAP – Mike Hildreth (Notre Dame)
- BERAC – Kerstin Kleese van Dam (LBNL)
- BESAC – Abbas Ourmazd (Wisconsin)
- NSAC – Tanja Horn (Catholic University)
- FES - TBD

NSB – Anneila Sargent (astronomer from Caltech)

Industry – Pharma:

- Darren Green (GSK)

Industry – IT:

- Lucas Joppa (Microsoft)
- David Heckerman/Ralph Herbrich (Amazon),
- Google-DeepMind representative?

Initial steps

- Meeting for subcommittee to hear presentations from the three organizers of the 'AI for Science' Town Hall meetings:
 - Rick Stevens (ANL)
 - Kathy Yelick (LBNL)
 - Jeff Nichols (ORNL)
- In addition, suggest presentations from:
 - NSF - Manish Parashar (CI), Farnam Jahanian(CISE)
 - NIH (TBD, NCI?)
- Possible presentation on Quantum Computing?

Timetable

- 'We would appreciate the committee's preliminary comments by May 2020 and a final report by August 2020.'

Suggested schedule:

- February 2020 – Input briefings and other input plus initial discussion
- March 2020 – Subcommittee discussion meeting and outline structure of report plus allocation of responsibilities
- April 2020 – Discussion of first draft of subcommittee report
- May 2020 – Preliminary version of report to ASCAC for comments
- June/July 2020 – Edited version of final version of report produced
- August 2020 – Final version of report delivered to ASCAC and Office of Science