Take one: IARC's workshop on "Partnering to Advance AI Research & Development"

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An important part of the new vision for IARC at Fermilab is increasing regional engagement – capturing activities that bring regional institutions together to exchange information and resources and increase our collective impact. We anticipate such an approach will bring awareness to our deep technology capabilities and thus broaden Fermilab's technology reach. As an early step toward this new vision, Fermilab, along with University of Chicago and Argonne National Laboratory, hosted an online workshop on Nov. 9 focusing on strategic opportunities to collaborate on artificial intelligence research: "Partnering to Advance AI Research & Development."

Seventy people, evenly represented by each institution, attended the workshop, whose purpose was to increase interaction in AI R&D between the three institutions and to connect researchers so they can form interinstitutional teams that compete for funding and do research with high impact.

The meeting was kicked off by a welcome address from Fermilab Deputy Director of Research Joe Lykken, who encouraged us to think about new opportunities that AI will bring for discovery science. Then, keynote speaker, Artificial Intelligence and Technology Office Director Cheryl Ingstad of the Department of Energy, spoke about the strategic vision of the newly established DOE office. Ingstad emphasized the need for coordination across the DOE enterprise on AI-related projects, the ongoing workforce training on AI, and other critical AI activities at DOE to strengthen the economy and national security.

Following the presentations, our panelists participated in an interactive Q&A with attendees from all three institutions.

Presentations from each of the three organizing institutions followed, featuring experts discussing the state of AI research and possible roads to collaboration. Nick Feamster, Neubauer professor at the University of Chicago Department of Computer Science and director of the university's Center for Data and Computing, gave a concrete example of how AI is useful in computer networks. Feamster pointed to how network management – configuration, network security and performance monitoring – are all becoming amenable to machine learning. James Amundson, head of the Fermilab Scientific Computing Division, gave a broad overview of Fermilab's rich AI program. James spoke about Fermilab's AI capabilities, including the computing hardware and infrastructure, real-time on-detector systems, and use of AI on operations and control, especially in the context of laboratory and industry partnerships. Rick Stevens, Argonne associate laboratory director for computing, environment and life sciences,

spoke about Argonne's AI vision and about the AI for Science and Operations initiative. Stevens also shared a broader set of activities at Argonne around exascale computing, AI and deep learning. It was fascinating to hear about how Argonne used high-performance computing and AI in medicine.

Finally, we introduced Cristina Thomas, 3M Global R&D Services' global R&D services leader and R&D global process owner, who gave a compelling talk titled "Advancing Digital Technologies in Industry." Her presentation gave a business view of how AI was being used at multiple levels throughout 3M, including health information systems, visual attention software, and manufacturing systems, and provided an overview of existing 3M partnerships around AI. We had an interactive Q&A session with all the speakers.

I believe we were very successful in starting a journey in connecting with Argonne and University of Chicago on topics in AI. This event was just part one of the two-part "AI + Measurements" collaboration, which aims to forge new connections in research and development. The next workshop, anticipated to be in spring 2021, will be more technical in nature and will allow researchers to directly explore collaboration possibilities. Stay tuned!

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