



Closing

James Amundson

AI for Experiments – Research Collaboration (JTFI Workshop, Part II)

October 20, 2022

A great start

How can AI enhance measurement?

University of Chicago and Fermilab

Eric Jonas

Assistant Professor, Department of Computer Science
Committee on Computational and Applied Physics
Physical Sciences Division, University of Chicago

Efficient Machine Learning in High-Energy Physics

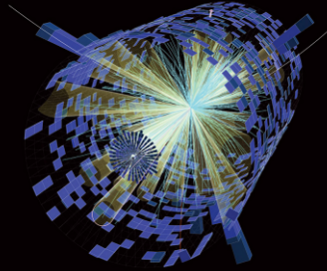
Jennifer Ngadiuba (Fermilab)

AI for Experiments — Research Collaborations
Fermilab IARC
October 20, 2022

 Fermilab



FastML Lab



HPC+AI-ENABLED X-RAY SCIENCE

MATHEW J. CHERUKARA

Group Leader, Computational X-ray Science
Advanced Photon Source

Quantifying predictive uncertainty with conformal inference

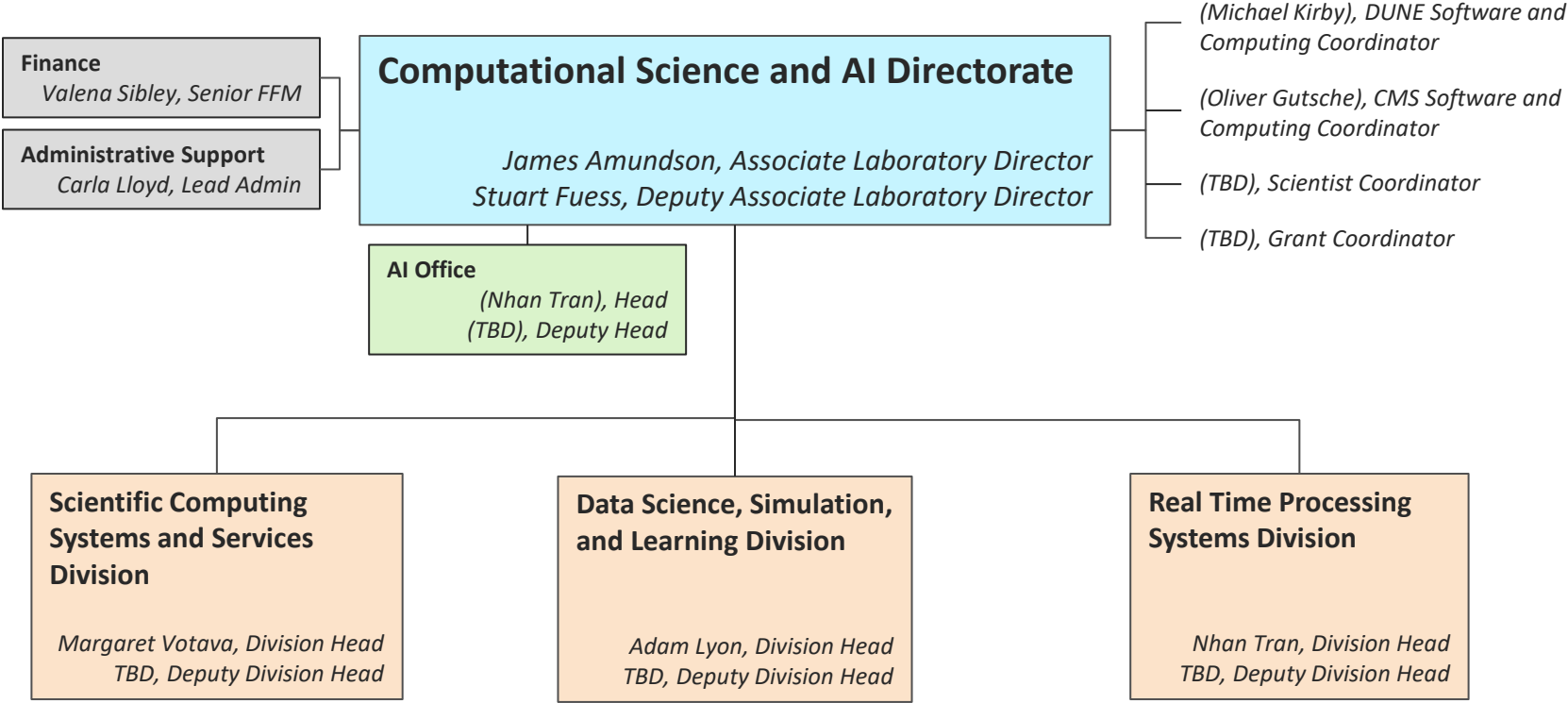
Rina Foygel Barber

<http://rinafb.github.io/>

What I saw this afternoon

- Actual conversations
 - Computer Scientists
 - Statisticians
 - HEP Scientists
 - Non-HEP Scientists
- Progress in understand problems and opportunities

New organization for scientific computing at Fermilab



Vision for the Computational Science and AI Directorate

- Provide *leadership* in HEP computing
 - Focus on creating solutions as opposed to fixing problems
 - Relieve the experiments of their need to constantly reinvent wheels
- Engage the broader scientific computing community
 - Locally
 - Argonne, U Chicago
 - Nationally
 - DOE Office of Advanced Scientific Computing Research (ASCR), other labs, universities
- Embrace AI
 - Prepare for upcoming AI Center funding opportunity announcement (FOA)
- Prepare our facility for the next generation of experiments
 - “Facility modernization”

In summary

I see the potential for many future collaborations

Funding is coming (!)

Many potential synergies here

We at Fermilab want to provide the resources to get started

We have HEP physicists

We have data

We have computers

We need computer scientists, statisticians, etc.

We need students

We need....

Let's continue the conversation!