AI IN THE ACCELERATOR DIVISION

We will begin at 1:00PM

Welcome and Announcements

November 12, 2021

Motivation

- earlier this year the DOE released <u>several</u> Funding Opportunity Announcements (FOAs) with a focus on artificial intelligence (AI), machine learning, and data analytics in quick succession

- preparing an FOA proposal is a non-trivial task – being prepared with proposal ideas would position us better to respond to future funding solicitations

- it would be beneficial to have a brainstorming session within the Accelerator Division
  - ✓ initially anticipated this being a brainstorming session, but in fact the vast majority of lightning talks represent funded projects

- connecting interested colleagues and getting feedback is a great way to sharpen potential proposal ideas

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Format: 1:00-4:10 PM
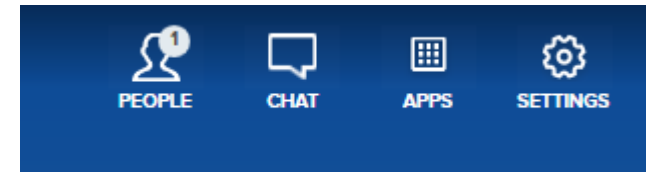
- ***Part I: Lightning Talks***
  - ✓ 5-minute presentations (each presenter shares their screen)
  - ✓ 3 minutes allocated for questions
    - *if you have a question, add to Chat, or*
    - *use "RAISE HAND" feature in Bluejeans <u>before</u> the end of the presentation*
    - *moderator will recognize person asking question*
    - *if no "hands raised", we'll go immediately to the next presentation*
    - *opportunity for offline discussion via the Live Notes*

- *Break*

- ***Part II: Discussion***
  - ✓ Data
  - ✓ Challenges

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Format

- how to use "RAISE HAND" feature
- Indico: https://indico.jlab.org/event/476/
- Live Notes: https://tinyurl.com/cysyf7ef

Welcome and Introduction	Christopher Tennant
(Click on Go to Map for Bluejeans connection), BlueJeans	13:00 - 13:15

AI for Sparse-to-Dense Mapping of Site Radiation Dose	Adam Stavola
(Click on Go to Map for Bluejeans connection), BlueJeans	13:15 - 13:23

TBD	Rama Bachimanchi
(Click on Go to Map for Bluejeans connection), BlueJeans	13:23 - 13:31

SRF Cavity Instability Detection	Dennis Turner
(Click on Go to Map for Bluejeans connection), BlueJeans	13:31 - 13:39

C100 Fault Prediction	Lasitha Vidyaratne
(Click on Go to Map for Bluejeans connection), BlueJeans	13:39 - 13:47

Uncertainty Aware Anomaly Detection for SNS	Malachi Schram
(Click on Go to Map for Bluejeans connection), BlueJeans	13:47 - 13:55

Reinforcement Learning for Accelerator Control for FNAL	Malachi Schram
(Click on Go to Map for Bluejeans connection), BlueJeans	13:55 - 14:03

Multi Objective Optimization of Cryogenic Heat Load and Trip Rates	Kishan Rajput
(Click on Go to Map for Bluejeans connection), BlueJeans	14:03 - 14:11

Global Orbit Locks	Adam Carpenter
(Click on Go to Map for Bluejeans connection), BlueJeans	14:11 - 14:19

Field Emission Management	Adam Carpenter
(Click on Go to Map for Bluejeans connection), BlueJeans	14:19 - 14:27

Thoughts to Improve the Performance of Polarized Electron Sources by AI/ML	Shukui Zhang
(Click on Go to Map for Bluejeans connection), BlueJeans	14:27 - 14:35

Smart Alarm for the CEBAF Injector	Christopher Tennant
(Click on Go to Map for Bluejeans connection), BlueJeans	14:35 - 14:43

Graph Analytics for CEBAF Operations	Christopher Tennant
(Click on Go to Map for Bluejeans connection), BlueJeans	14:43 - 14:51

Semi-Autonomous Mobile Diagnostic	Christopher Tennant
(Click on Go to Map for Bluejeans connection), BlueJeans	14:51 - 14:59

Summary

- this event represents the <u>start</u> of a conversation

- we anticipate a generating a summary report by end of the calendar year
  - ✓ presenters, if you have not already done so, please provide a paragraph (up to 1-page) description of your project/idea
    - *what is the problem you are trying to solve?*
    - *how will you solve it?*
    - *what is the anticipated outcome/benefit?*
    - *what data is required?*
    - *are there any necessary investments? specific hurdles for implementation?*

Any Questions?

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