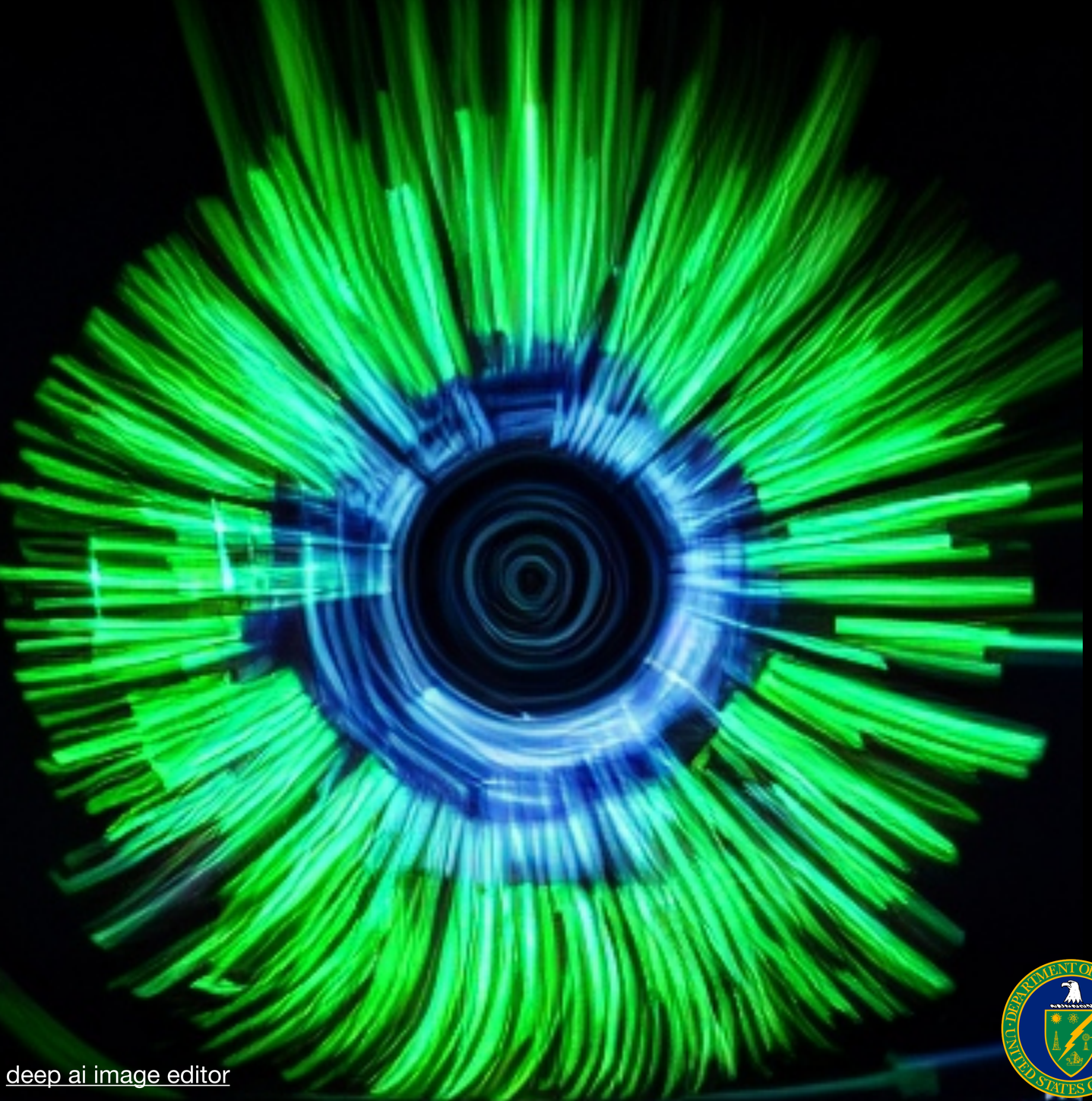


deep ai image editor

Fast ML Project Update

Hannah Bossi (MIT)

MITHIG Group Meeting

October 10th, 2025

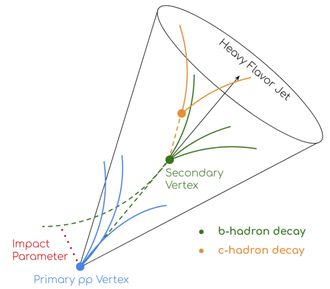
MIT HIG's work was supported by US DOE-NP

Massachusetts Institute of Technology

OVERVIEW

- **General idea:** Integrate ML into firmware to perform optimization and control tasks.
  - Focus of previous iterations of the grant was triggering on HF topologies in sPHENIX.
- **MIT Workforce:** Gian Michele, Gunther, Cameron, Hannah, Hao-Rhen

Many other collaborators not listed.



- **Ongoing goals/tasks:**
  - (1) Physics Simulation (2) HF tagging in sPHENIX (3) AI/Firmware translation (4) demonstrator implementation

Transforming Experimental Physics: Autonomous AI-enabled Embedded Streaming Readout and Intelligent Sensors for EIC

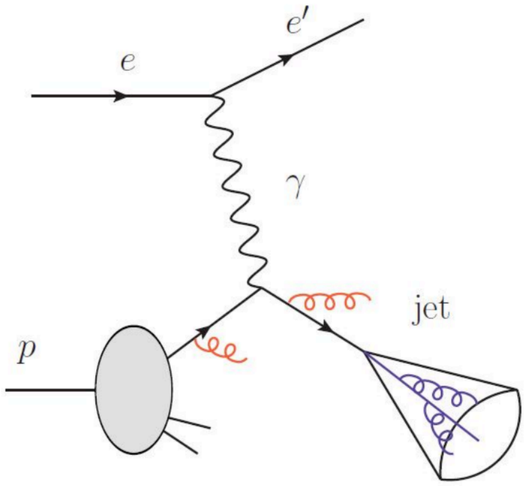
A proposal submitted to the DOE Office of Science
January 14, 2025

- This January we submitted a renewal application of the DOE Grant DE-FOA-0002875, which was denied.

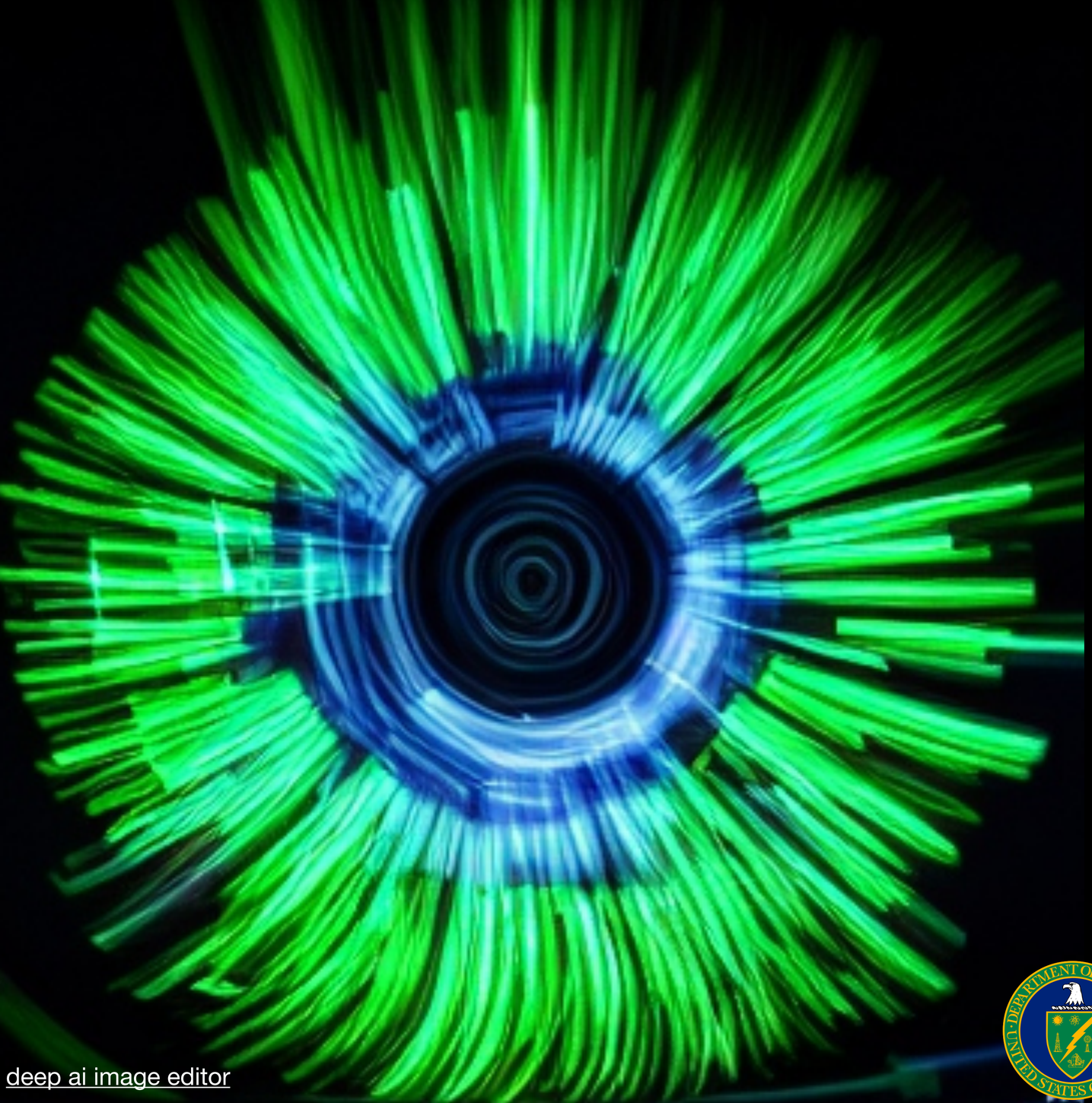
As a result, future of this project is at the moment undefined, some options…

POTENTIAL AVENUES FOR RESUBMISSION

- PI meeting in November, currently some subset of the team is preparing results for this. (Currently minimal MIT involvement in this part.)
  - Idea is to try to resubmit the proposal with more concrete work completed.
- Proposal from 2024 focused on DIS at the EIC. Contained 4 tasks
  - Event Classification
  - AI on MAPS detectors for data processing and noise filtering
  - Fault-tolerant ML for streaming far data.



Would be useful to discuss what extent we want to be involved in this…



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Backup

MIT HIG's work was supported by US DOE-NP

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