



NSF Campus Cyberinfrastructure PI and Cybersecurity Innovation for Cyberinfrastructure PI Workshop

September 23 – 25, 2019 | Minneapolis, MN

NSF Program: CICI

Program Area: SSC

Award Number: 1839900

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Project Title: Integrity Introspection for Scientific Workflows (IRIS)



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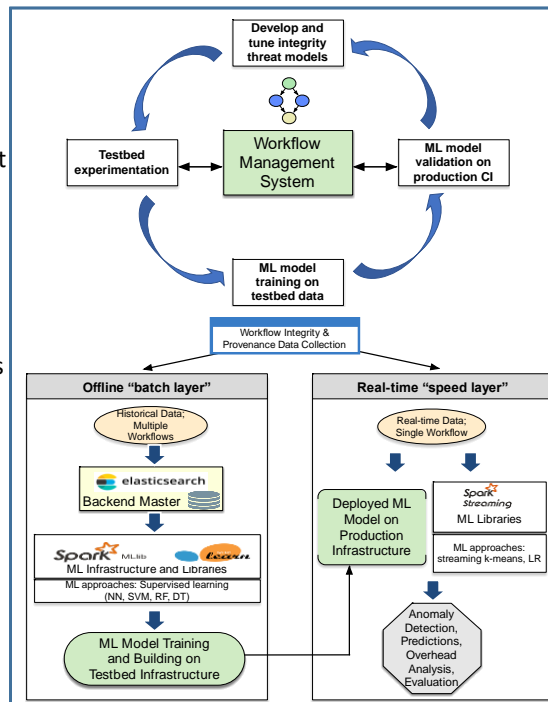
Quad Chart for: *CICI SSC: Integrity Introspection for Scientific Workflows (IRIS)*

Challenges:

- Scientific workflow processing sometimes suffers from data integrity errors when executed on distributed cyberinfrastructure (CI).
- Lack of tools that can collect and analyze integrity-relevant data and hence, errors go undetected and corrupt data becomes part of the scientific record.

Deliverables:

- Develop an integrity introspection framework that collects integrity data and utilizes ML algorithms to automatically detect, analyze and pinpoint source of integrity errors.
- Train ML algorithms on controlled testbeds and validate on national CI by integrating framework with Pegasus.
- Engage with science application partners in gravitational-wave physics, earthquake science, and bioinformatics to deploy the analysis framework.



Broader Impact:

- The IRIS integrity introspection framework will be available to a broad range of domains that rely on Pegasus.
- IRIS will contribute to the discussions on reproducibility since integrity is essential to supporting reproducibility.
- Integrity-relevant data collected in IRIS and ML algorithms developed can be used by students and researchers.

Metadata tag:

- <https://sites.google.com/view/iris-nsf/>
- <Application of ML for integrity analysis>
- <Looking for different sources of integrity data: infrastructure and application>
- <Builds on CICI SWIP project, by adding detection and analysis of integrity errors>

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