

IPCC ROOT

Princeton/Intel Parallel Computing Center

Progress Report

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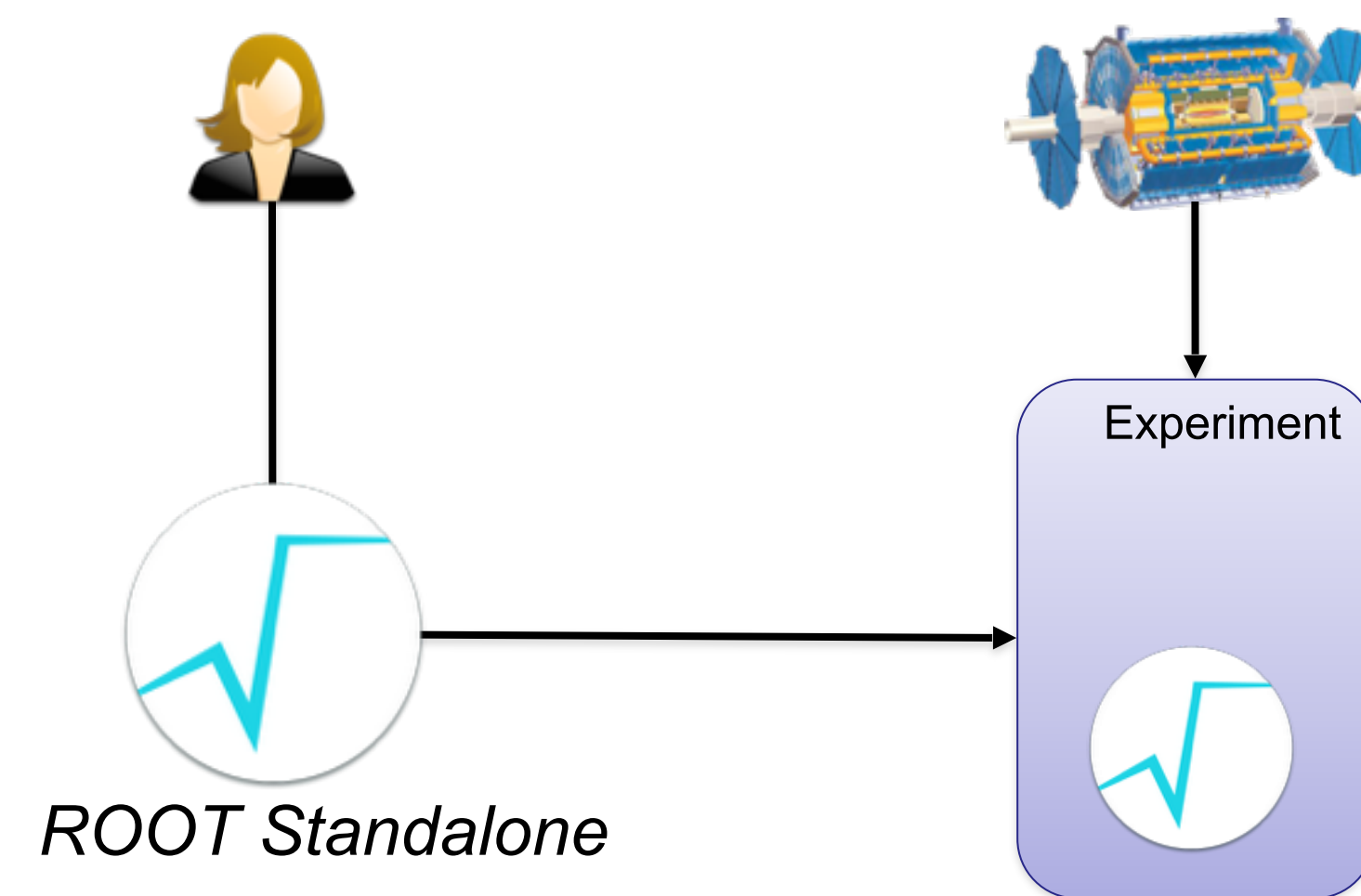
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Intel — Princeton IPCC with Focus on ROOT

- ❖ ROOT is a data analysis framework which enables big data processing, statistical analysis, visualization and storage in highly efficient manner.
- ❖ Distributed (in many aspects) project development
 - ❖ Core team at CERN, FNAL (<https://root.cern.ch/team>)
 - ❖ Hundreds of contributors all over the world

Why ROOT

- ❖ Widely used in the field of high-energy physics (HEP) (~10K users)
- ❖ Used by almost all major HEP experiments (including LHC's flagmen ALICE, ATLAS, CMS, LCHb)
- ❖ An improvement in ROOT could have significant impact on the HEP community



Scope of the Planned Work in ROOT

- ❖ Improve ROOT's Math and I/O libraries. The deliverables for first year are:
 - ❖ End of Q1: Updated work plan for 2017
 - ❖ End of Q2: Enable vectorization ROOT Math (VecCore)
 - ❖ End of Q3: Integrate automatic differentiation prototype, clad, in ROOT
 - ❖ End of Q4: Extend the thread-based file merging in GeantV and put it in ROOT

Status

- ❖ Q1:

- ❖ Initial discussion with various ROOT people to enumerate a work plan, taking into account ROOT status and program of work for 2017. It was presented and approved at the Intel IPCC Root Project Kick-off (<https://indico.cern.ch/event/612658/contributions/2469700/>)
- ❖ Created a dedicated Intel-Princeton IPCC website <https://ipcc-root.github.io/>

Thank you!