AS Fortnightly Team Meeting

March 11, 2025

Attendees

Present: Matthew, Oksana, Massimiliano, Ben, Gordon, Iason, Lino, Mo, Peter F, Henry, Peter O
Apologies: Ianna Osborne
Designated Note Taker:
Convener:

Group Agenda

1. Agenda for this meeting
    a. Follow up on past items
        i. GPU server for CI
            1. Matthew is slowly following up with Quansight team on reasonable use cases.
                a. https://github.com/Quansight/open-gpu-server
                b. Waiting on response from Quansight on this.
                    i. Follow up: Currently not able to get access
            2. Princeton was setting up a GPU CI node. Is this still WIP, or is it about to turn on?
        ii. Uproot and Awkward
            1. From Ianna:
                a. The main news from our side is an uproot release that fully supports RNTuple read and write. It seems though that we have a problem with XRootD. Massimiliano is looking into it.
                    i. Uproot v5.6.0
                        1. Reading is fully supported for RNTuple v1.0.0
                        2. Writing is supported for things that should be expected. Might be some areas that aren't yet fully supported, but need to be validated.
                            a. Alex: Can we write vectors? There are sometimes where this has caused people to need to go back to ROOT.

            i. Peter: Not sure. Will need to follow up.
        ii. https://github.com/scikit-hep/uproot5/issues/1404
            1. Problem with recreate of remote paths with XRootD
            2. Plan on how to implement this provided by Massamiliano. Awaiting some additional feedback from ffspec-xrootd.
        iii. https://github.com/scikit-hep/uproot5/issues/1383 reading RNTuple with Dask
            1. Oksana: High priority to investigate this.
            2. Peter is in contact with Andres, and this is going to get looked at now the read/write is done.
    b. The virtual array PR is being reviewed by Angus and is being improved. That's why we have not released a new Awkward release yet.
        i. More or less ready, and waiting for Angus to do a final signoff (great!)
        ii. Alex: What's the front facing /user situation? How do things change?
            1. Minor change if using coffea.
            2. Alex: What if you're not using coffea?
                a. Reading is not yet finalized. Will need to follow up.
                b. Does this mean we're locking people into coffea?
                    i. Peter: Could look into turning reading into lazy operations, but this might result in much more data being read. Peter has a draft PR to follow up on: https://github.com/scikit-hep/uproot5/pull/1393
    c. Maxym Naumchyk has joined us as a fellow to work on improving coffea to integrate latest performance improvements from awkward.
        i. Improving and simplifying the Coffea library
        ii. Peter: Planning to improve the writing of schemas more straightforward.
            1. For Awkward and Uproot it is about making the maintenance more easier in general

2. However, this also means that it should be much more easy to maintain and write external additional schemas
3. Maxym has started as of last week

d. Uproot and PHYSLITE
    i. [x] Awaiting test PHYSLITE files to be added to scikit-hep-testdata
    ii. This has been done (Artur)

2. Awkward + JAX
    a. Peter was revisiting this after the 2025-02-11 meeting to see if there was still a way forward with JAX. What are Peter's findings following up on this?
        i. In principle, the JAX backend *does* work again, but it is still not in an optimal state (not well tested, some functionality not well implemented, large performance penalty given lack of JIT compilation, some arrays cant' be JAX and so end up with a mix of multiple array types.)
        ii. Peter still feels more comfortable dropping it, but there's still no clear solution without it.
            1. This can also go into the next meeting agenda.
        iii. If no, what is the plan?

iii. Revisiting differentiable programming for AS
1. Last meeting (2025-01-28)
2. Will organize a meeting with (all) experts to decide if we want to develop a dedicated AD library in coming weeks
3. Enrico gave permission to re-create his correctionlib-gradients library. he will then archive his repo. Lino would be natural candidate to become maintainer (unless there are other volunteers?)

iv. ServiceX Ready for Prime Time
1. All known transaction leaks patched
2. Ability to scale App server
3. New authentication model at UChicago for everyone on ATLAS
4. Seattle Workshop scheduled for March 23/24
    a. Indico
    b. Discussion Doc/Minutes/Brainstorming/etc.
5. Adding support for TOP-CP
    a. Great. Follow up with Peter Onyisi on this
6. Adding support for BLS
    a. The data access has been added (for some odd types!)

        b. Turns out they need to run R25 CP algorithms, which Roger is working on.
    7. Training Data for Exotics Analysis
        a. Working well enough that it is turning up bugs (or “features” that are not understood by the team) in derivations.
            i. Currently happening inside of ATLAS (so note that if want to look at this)
        b. Working to build a command that just “does the work” using uv (Gordon). ← Matthew - look – I’m learning uv! ;-)
    8. Deployment is currently *only* at UChicago. Can we get elsewhere?
        a. Alex: Is there discussion at Purdue AF?
            i. Ben: No, but we can follow up on IRIS-HEP with them.
                1. Alex: Purdue is active enough to be a good bridge to look into. Follow up on IRIS-HEP Slack.
                    a. People to follow up with: Stefan Piparov and Dmitry Kondratyev
            ii. Have an ATLAS Talk Discourse for ATLAS people.
v. Next **AGC demo day** on April 4: https://indico.cern.ch/e/agc-demo-day-8
    1. Get in touch, but already filling up.
vi. [Alex] We probably need some stats tool brainstorming to plan broader next steps
2. Round table discussion
3. Software Releases
4. Topical meetings https://indico.cern.ch/category/10570/
5. Milestones and Deliverables (folder)
6. IRIS-HEP Overview Monday board
7. IRIS-HEP Metrics Monday board

Topical Meeting Suggestions

Proposed highlights to copy/paste into reporting

Please add narrative sentences or bullet points to highlight in reporting.

Project Updates (narrative for reporting and details)

Ordered roughly from DOMA event processing > statistics tools > high level analysis tools

AS Grand Challenge

Narrative Summary to copy/paste into reporting

More Detailed comments:

Awkward Array

Narrative Summary to copy/paste into reporting

More Detailed comments:

uproot

Narrative Summary to copy/paste into reporting

More Detailed comments:

Histogram Projects

Narrative Summary to copy/paste into reporting

More Detailed comments:

Functional ADL

Narrative Summary to copy/paste into reporting

More Detailed comments:

hep_tables

Narrative Summary to copy/paste into reporting

More Detailed comments:

MadMiner

Narrative Summary to copy/paste into reporting

More Detailed comments:

Ppx

Narrative Summary to copy/paste into reporting

More Detailed comments:

pyhf

Narrative Summary to copy/paste into reporting

More Detailed comments:

GooFit and AmpGen

Narrative Summary to copy/paste into reporting

More Detailed comments:

Particle and DecayLanguage (Also AmpGen?)

Narrative Summary to copy/paste into reporting

More Detailed comments:

cabinetry

Narrative Summary to copy/paste into reporting

More Detailed comments:

Vector

Narrative Summary to copy/paste into reporting

More Detailed comments:

Docker images for experiments

Narrative Summary to copy/paste into reporting

More Detailed comments:

ROOT on Conda Forge

Narrative Summary to copy/paste into reporting

More Detailed comments:

Other Integration Efforts / Needs Across Projects

Narrative Summary to copy/paste into reporting

More Detailed comments:

Milestone Updates

From GitHub Board

Meeting Notes

New Action Items

- (Date) - (Assignee) - (Description)

Old Action Items