

LArSoft Coordination Meeting

Release and project report

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Fermilab

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Today's agenda and speakers

- Release and project report (Erica)
- Introduction to multi-threaded *art* (Kyle Knoepfel)
- Geometric 3D vertex fitter (Giuseppe Cerati)
- AOB

Releases

- Last week
 - v06_50_00 released on Sep 20
 - Updates to `KalmanFilterFinalTrackFitter` and `KalmanFilterTrajectoryFitter` modules
- This week
 - No merge requests received so far, so just changes to develop

TensorFlow ups support

- Have been attempting to package TensorFlow as a ups product
 - Requested by DUNE
 - Goal is to allow DL applications to run networks within LArSoft jobs
- Progress has been slow
 - Native build system not compatible with art/LArSoft requirements
 - Have worked around this
 - Also has internal builds of `protobuf`, `Eigen`, and a few other products
 - Version of `Eigen` used internally is different from the one LArSoft uses
 - TF version is untagged, and is significantly different from the one in LArSoft
 - Current work-around is to isolate the TF version by renaming it
 - Clearly a sub-optimal solution, so pursuing other possibilities also
- Bottom line:
 - Continue to make progress, but still some issues to resolve

Source code documentation

- Previously discussed a standard for source code documentation
- Have since received some excellent feedback, particularly related to documenting FHiCL configuration
 - Reveals different preferences in how people want to interact with source code documentation
 - Doxygen
 - Effectively looking at source code for configuration information
 - Some extra work might be able to make this more like plain text
 - `lar -print-description arg`
 - Prints FHiCL table-formatted text for whatever people put into `fhicl::Comment`
 - Could be “prettified”. Need to ensure it completely describes the configuration.
 - Plain text in top of header or module / service cc files
 - The main focus of the original proposal
 - Should avoid the need to maintain multiple sources of documentation
 - E.g., in FHiCL descriptions + at the top of headers / in Doxygen format
 - Should try to meet all needs in one place: Doxygen, directly in the file, available fcl browsers

Source code documentation

- Feedback cont'd:
 - If Doxygen is the standard:
 - Needs to be “trivial” to check formatted documentation as code is written
 - Needs to be trivial to find documentation for a developer's current release
 - Needs to be user-focused
 - All descriptive comments in headers should be Doxygen formatted
 - Have observed many headers with “extensive comments” that do not show up in Doxygen because of a lack of proper formatting
 - In the source code as a primary source is good
 - Most likely to be updated with the code
 - Close to the place it is used / defined
- Suggested short term actions:
 - Look for header comments that are not Doxygen formatted
 - Investigate ways to improve FHiCL config display in Doxygen
 - Further discuss whether / how to comment at top of headers

OSX support

- Yosemite will reach end of support in November
- Until Spack is deployed, this will leave us with only “known to work+” for Mac OSX
 - In this case, we only mean that SIP must be disabled
 - Will continue to distribute
 - Nonetheless, hope to avoid this situation...
- Many users (and many CI system nodes) are still on Yosemite

3D pattern recognition workshop at CERN?

- Mentioned this at the previous meeting:

In discussing with pixel people, idea of a 1-day workshop at CERN to discuss 3D pattern recognition with ALICE

- Share ideas with people who have been working for a decade with 3D reconstruction from pixel-based detector
- Seems especially timely given the current thrust on 3D PR

Thinking in terms of November time frame?

- Anyone interested please contact me (erica@fnal.gov)
 - Have had a couple of people express interest. Are there more??
- Need to make a final decision asap

Status of on-going sub-projects

- LArG4 re-factoring project
 - No report this week
- CI system operations
 - Vito di Benedetto
- Usability: associations
 - Saba Sehrish
- Profiling and optimization project
 - No report this week
- LArSoft documentation
 - Katherine Lato

The end