

# Software & Code Management

August 23th, 2018

*Tokyo Analysis Workshop*

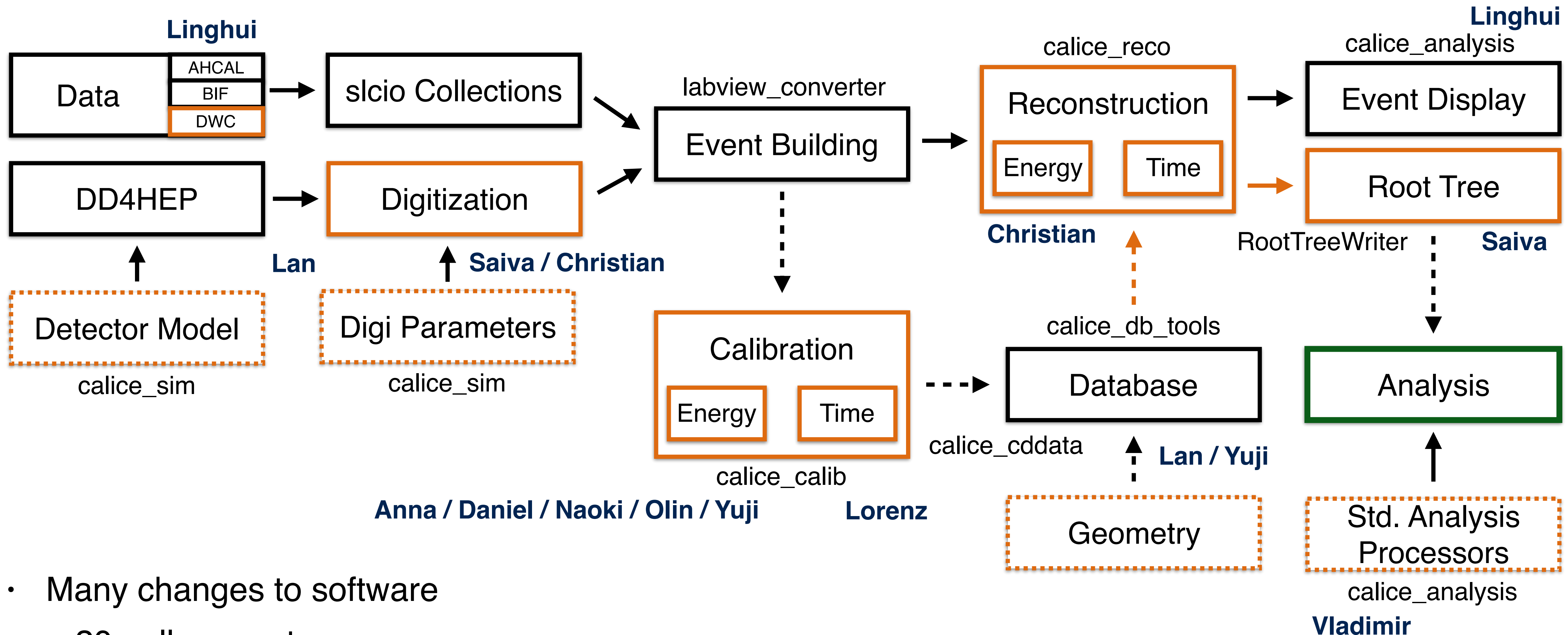
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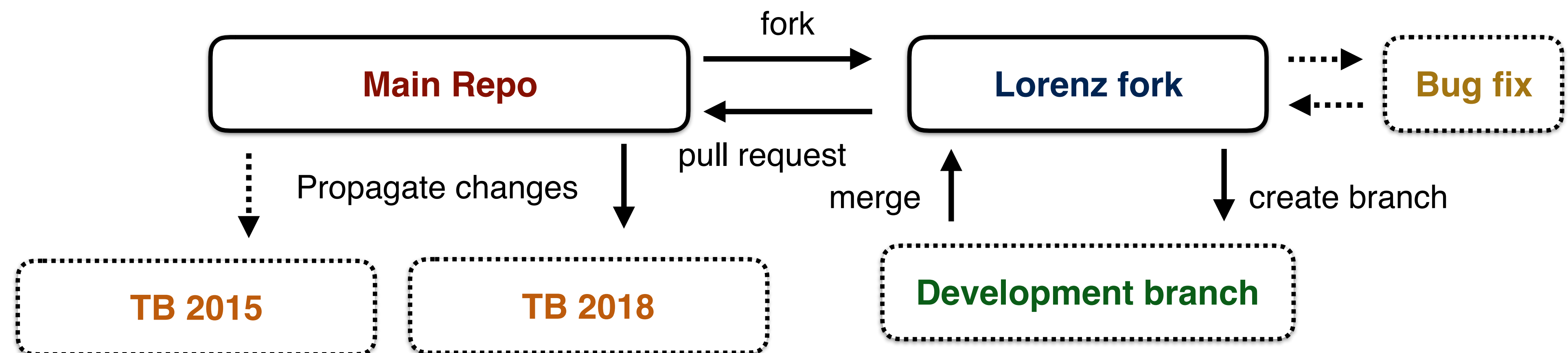
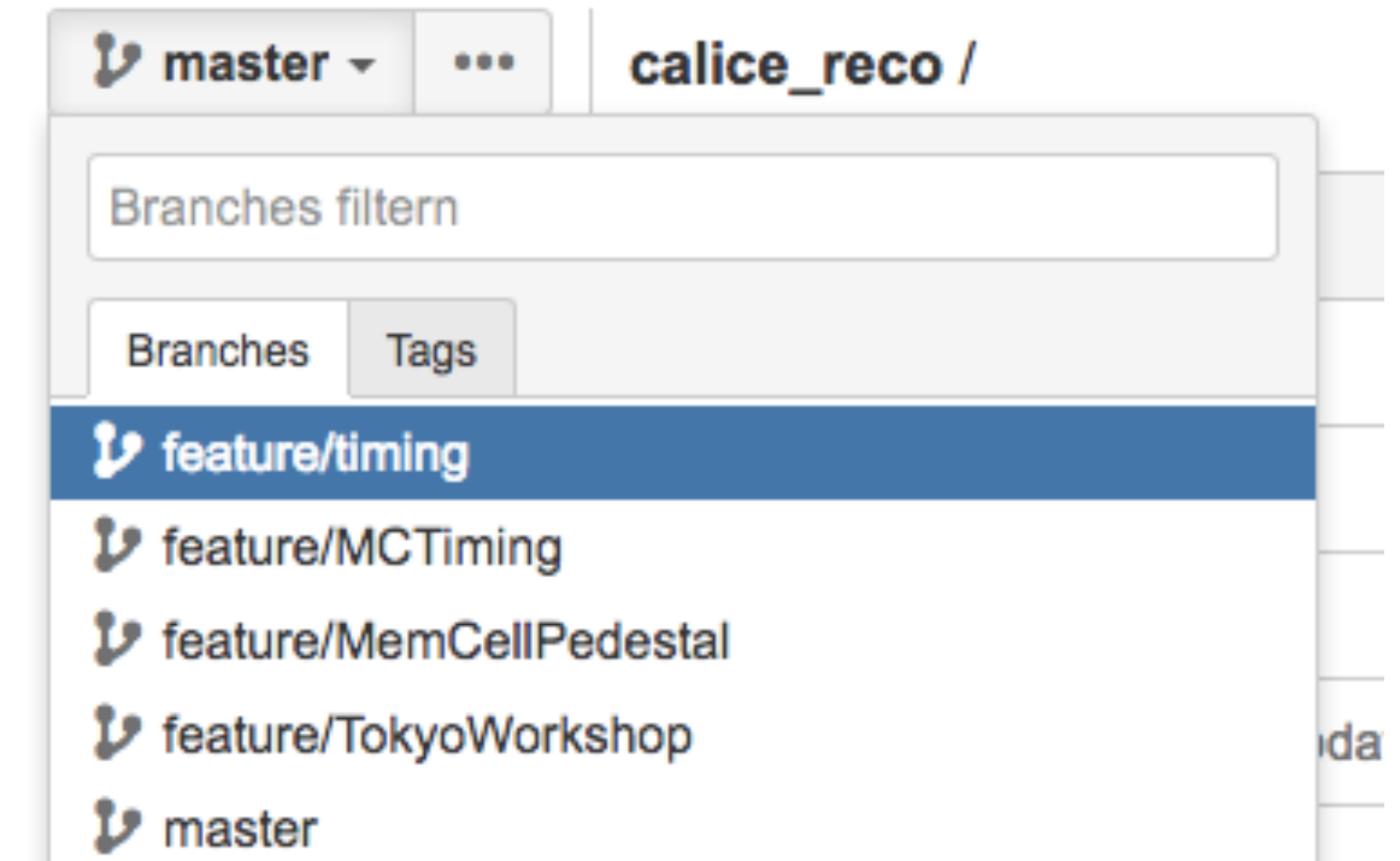


# Overview - Software Workflow

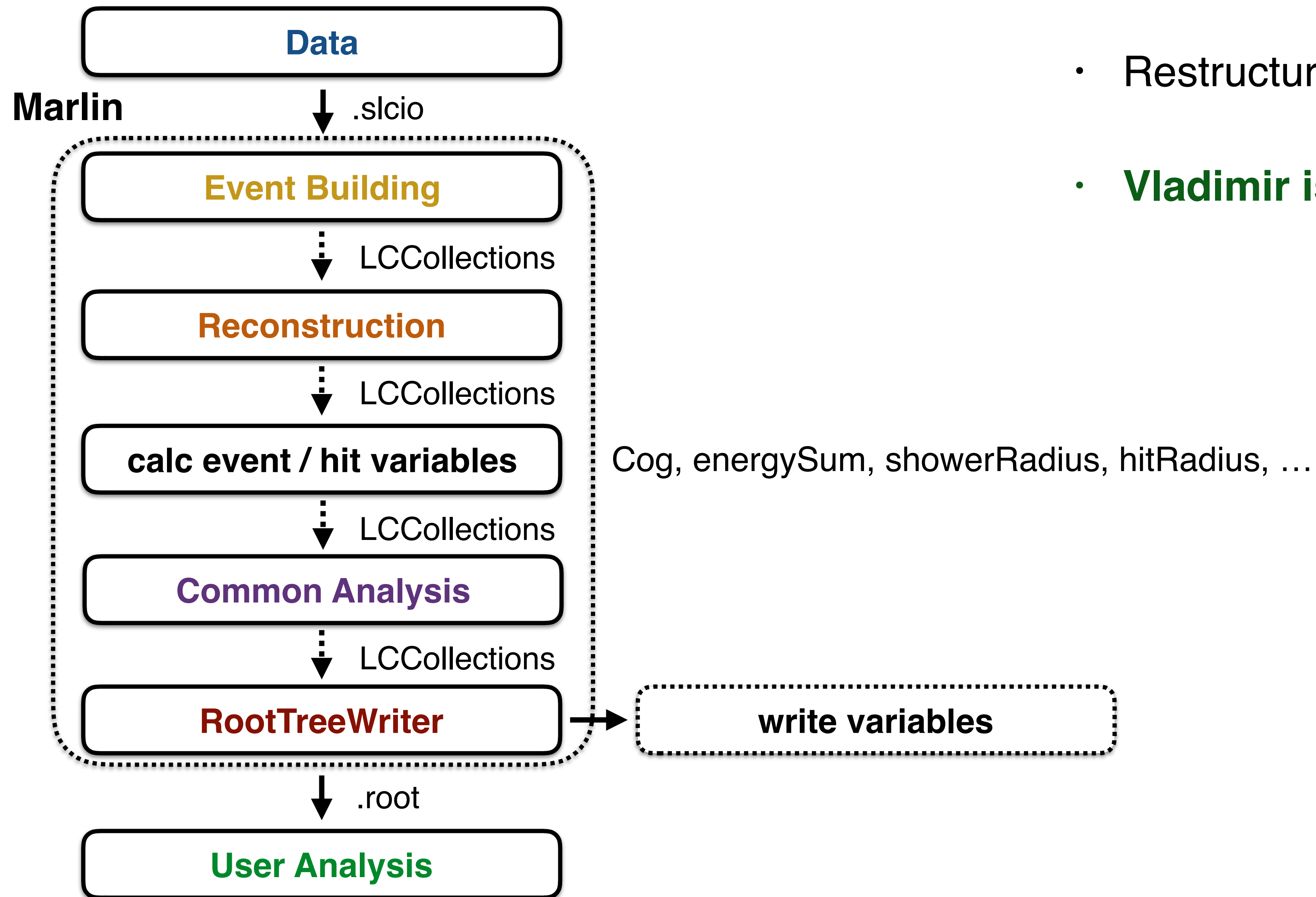


- Many changes to software
- ~ 20 pull requests

- Extensive usage of new workflow
- **Timing memory cell offsets**
- **Pedestal memory cell offsets**
- After testing:  
Should be merged in next release  
—> change of steering files



# Software Overview

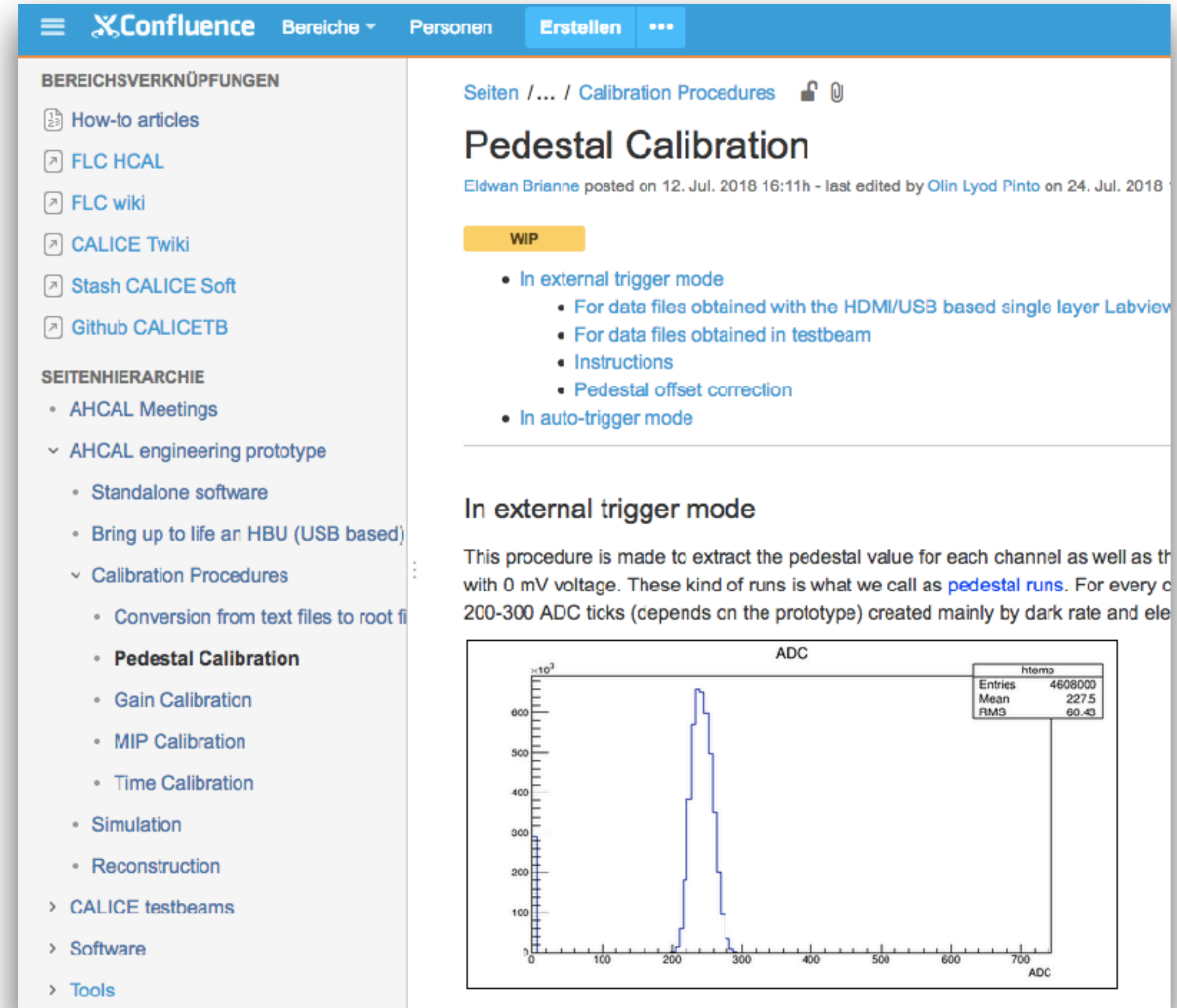


- Restructuring of Reconstruction pipeline
- **Vladimir is making big steps forward**

- **Confluence is evolving**
- **Keep it going!**

We need documentation on several layers

1. Comments in Code
2. Processor documentation
3. Package documentation
4. High level documentation → Confluence



The screenshot shows a Confluence page for 'Pedestal Calibration'. The left sidebar contains a navigation menu with sections like 'BEREICHsverknüpfungen' (How-to articles, FLC HCAL, FLC wiki, CALICE Twiki, Stash CALICE Soft, Github CALICETB) and 'SEITENhierarchie' (AHCAL Meetings, AHCAL engineering prototype, Standalone software, Bring up to life an HBU (USB based), Calibration Procedures, Conversion from text files to root file, Pedestal Calibration, Gain Calibration, MIP Calibration, Time Calibration, Simulation, Reconstruction, CALICE testbeams, Software, Tools).

The main content area shows the page title 'Pedestal Calibration' with a 'WIP' (Work In Progress) label. It lists two main modes: 'In external trigger mode' (with sub-points: For data files obtained with the HDMI/USB based single layer Labview, For data files obtained in testbeam, Instructions, Pedestal offset correction) and 'In auto-trigger mode'.

Below the list, there is a section titled 'In external trigger mode' with a description: 'This procedure is made to extract the pedestal value for each channel as well as the pedestal offset with 0 mV voltage. These kind of runs is what we call as **pedestal runs**. For every channel, we create 200-300 ADC ticks (depends on the prototype) created mainly by dark rate and electronics noise.'
































At the bottom, there is a histogram plot titled 'ADC' showing a distribution of ADC values. The x-axis is labeled 'ADC' and ranges from 0 to 700. The y-axis is labeled 'Entries' and ranges from 0 to 600. The histogram shows a sharp peak around 227.5. A statistics box in the top right corner of the plot area provides the following data:

Items	
Entries	4608000
Mean	227.5
RMS	60.43

- Jira issue board is evolving
- Many issues fixed
- **If you encounter a bug, missing feature: file an issue**

Software  
Kanban board

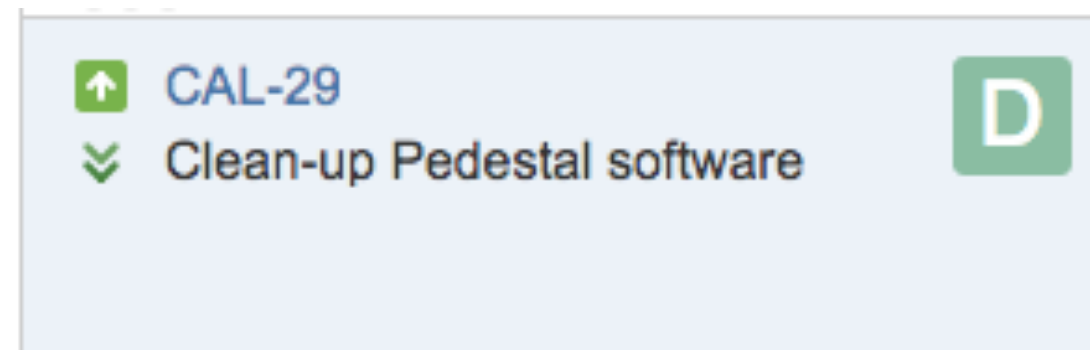
QUICK FILTERS: [Only My Issues](#) [Recently Updated](#)

12 To Do	1 In Progress	9 Done <a href="#">Release...</a>
<p> <b>CAL-1</b>   Make the CaliceSoft compatible with newer ILCSOft versions</p> <hr/> <p> <b>CAL-2</b>   Remove all warning  <a href="#">NewILCSOft</a></p> <hr/> <p> <b>CAL-7</b>    Refactoring of the standalone calibration software for the AHCAL</p> <hr/> <p> <b>CAL-13</b>   RootTreeWriter using vectors</p> <hr/> <p> <b>CAL-14</b>   CMake compilation</p> <hr/> <p> <b>CAL-16</b>    Time walk correction</p>	<p> <b>CAL-27</b>    Outsource calculation of event / hit variables in processor</p>	<p> <b>CAL-6</b>   Segmentation fault with BifWriteEngine</p> <hr/> <p> <b>CAL-8</b>    Processor to split slcio collections</p> <hr/> <p> <b>CAL-9</b>    Documentation of RootTreeWriter</p> <hr/> <p> <b>CAL-10</b>   Event Display to show PreShower and TC data</p> <hr/> <p> <b>CAL-11</b>   Full reconstruction/simulation chain of the June and May 2018 data</p> <hr/> <p> <b>CAL-12</b>   Event Display geometry</p>

# Mid Term Open Points



- Migration to cvmfs (Eldwan started to investigating)
- Migration to GitHub?
- Compatibility with newer ILCSoft versions
- Cleanup



- New software tools tested extensively
- Many people contributed to software
- Git workflow payed off well
- Made a big step forward during the workshop
- Still many open points