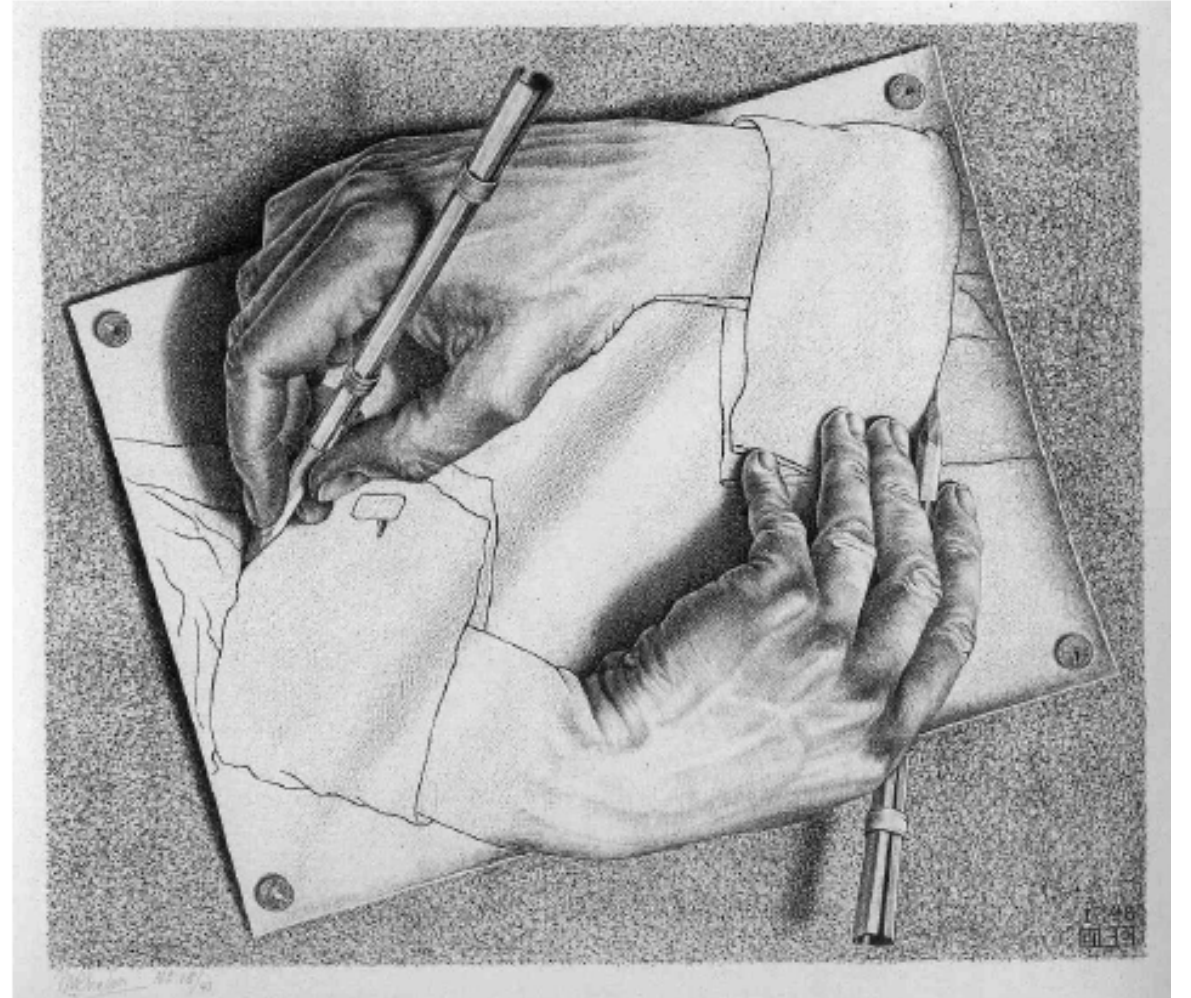


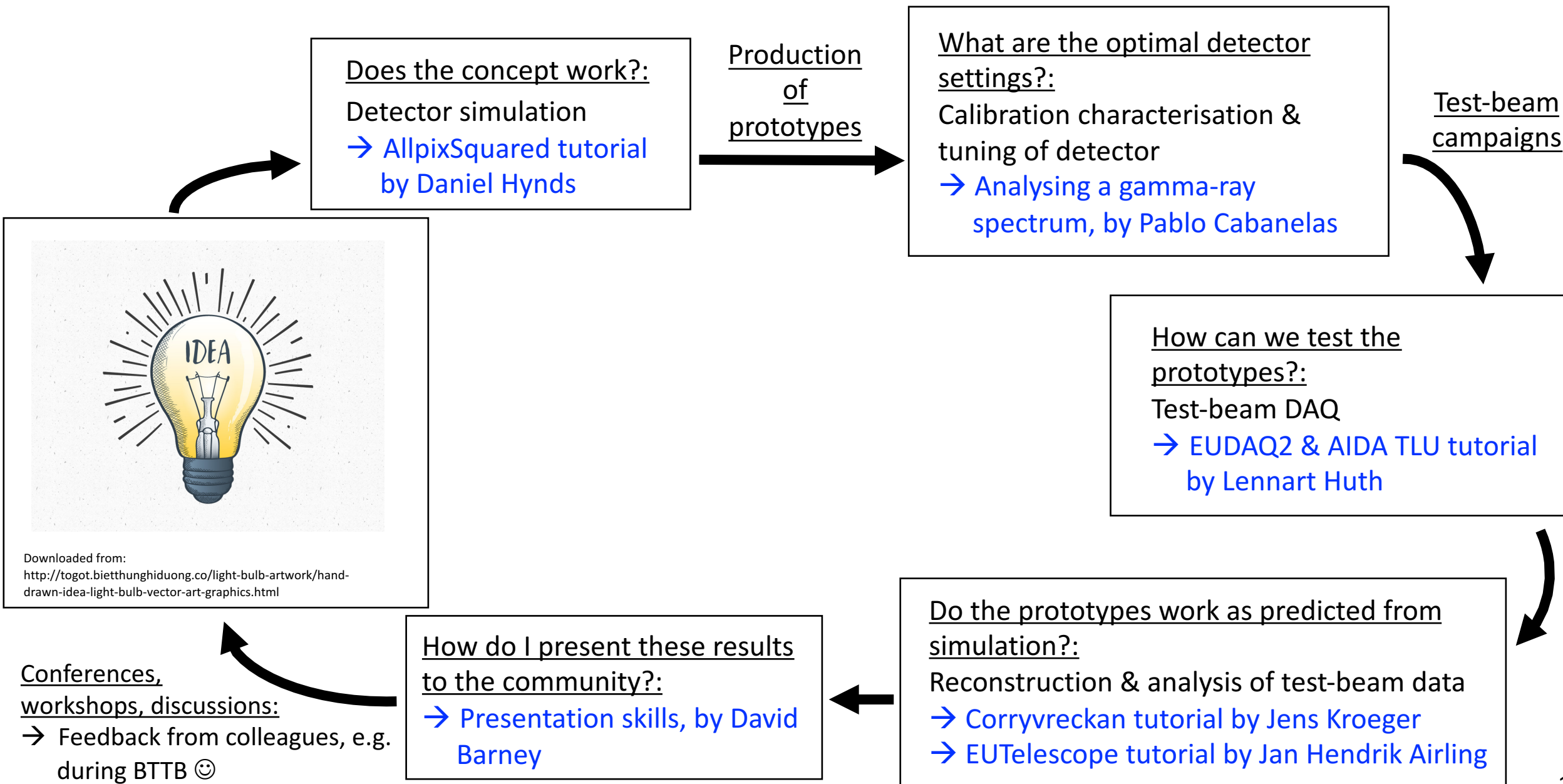
# Hands on tutorials during BTTB 8

6 tutorials  
2 sessions (Tuesday, Thursday)



M. C. Escher, Drawing Hands, downloaded from [https://en.wikipedia.org/wiki/Drawing\\_Hands#/media/File:DrawingHands.jpg](https://en.wikipedia.org/wiki/Drawing_Hands#/media/File:DrawingHands.jpg)

# R&D cycle & necessary tools



# Silicon Detector Monte-Carlo Simulations with Allpix Squared, *by Daniel Hynds and Simon Spannagel*

## AllpixSquared - A Modular Simulation Framework for Silicon Detectors

### Content:

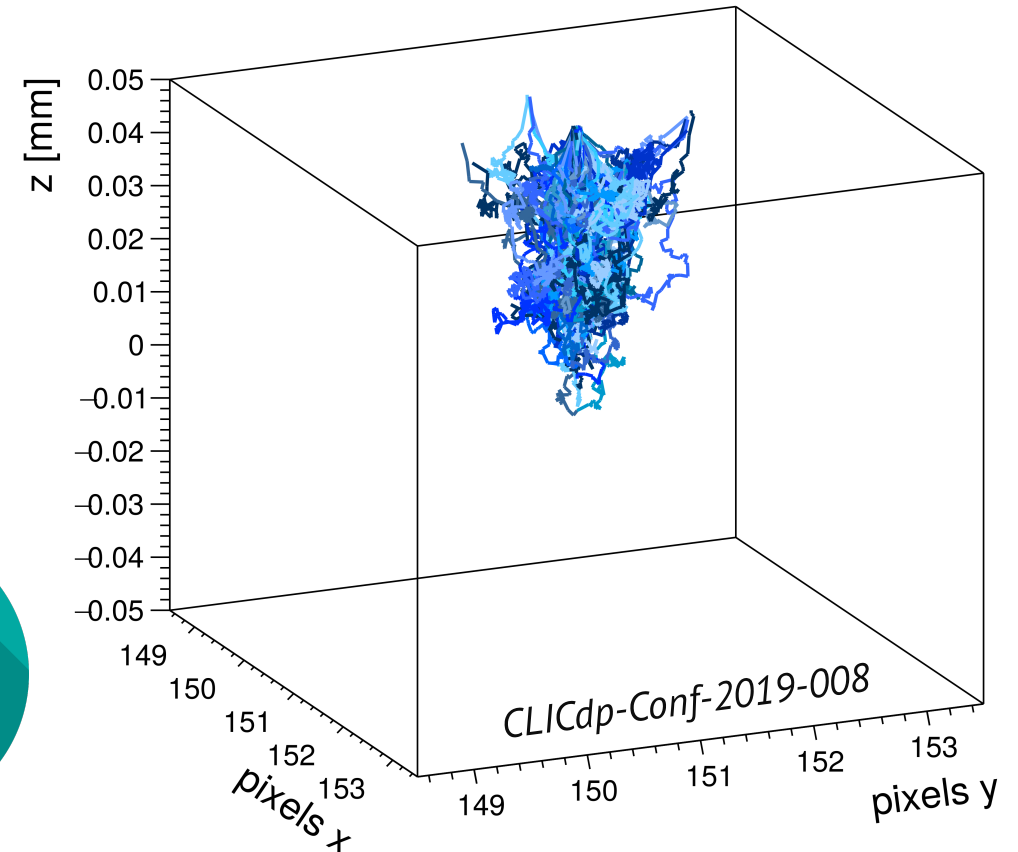
- For beginners: introduction & step-by-step guidance through example simulation
- For more advanced users: look at more advanced features & setups

### Recommended preparation:

- Install the latest release version of Allpix Squared on your computer or make sure you have access to a working version online
- Detailed instructions can be found in the manual or on the website (<https://cern.ch/allpix-squared>)
- The recommended option for this tutorial is to install the Docker image



Motivation why it's nice to learn AllpixSquared:  
**3D visualization of the charge carrier motion in CMOS sensor**



# Analysing a gamma-ray spectrum by *Pablo Cabanelas*

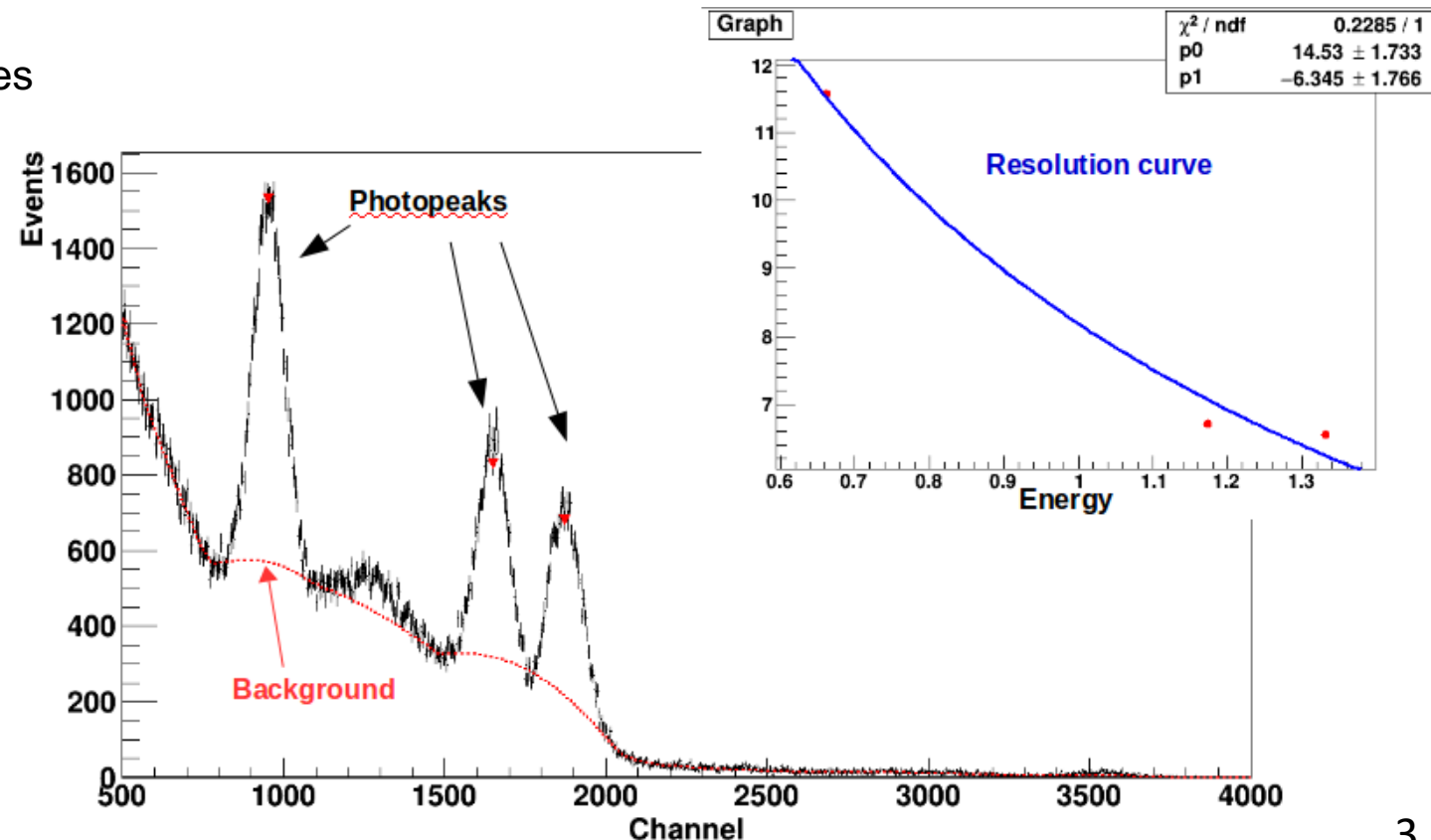
This tutorial introduces some useful and easy tools for drawing and analysing a typical spectrum

## Content:

- Automated peak searching and calibration procedures can be done
- All based in simple ROOT scripts
- The participants can practice with different examples

## Recommended preparation:

- Only basic concepts on root are required



# Making the most of your test-beam time - Understanding the triggering modes of the new AIDA-TLU to optimally match your DAQ system, *by Lennart Huth*

## EUDAQ - A Generic Data Acquisition Framework

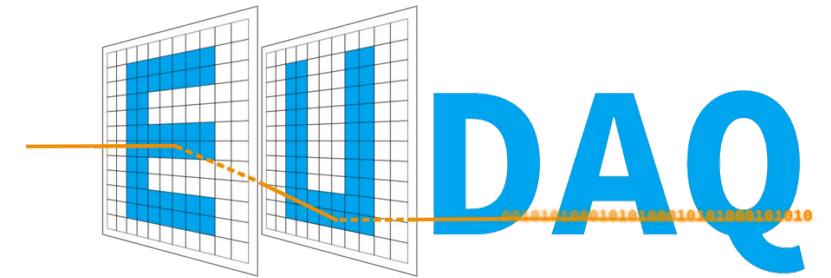
### Content:

- Install and use EUDAQ2
- Introducing the AIDA-TLU
- Testing the data taking modes
- Setting it all up and build a small test system

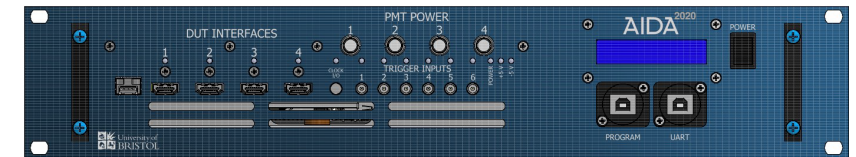
### Recommended preparation:

- Take a look at and install required software:  
[github.com/lhuth/bttb8\\_daq\\_tutorial](https://github.com/lhuth/bttb8_daq_tutorial)

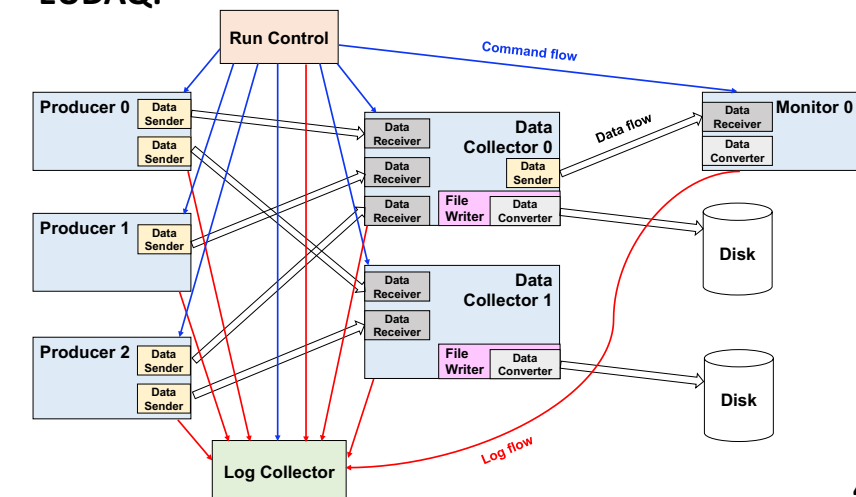
Example of test-beam setup with various devices/subsystems (scintillators, telescope, DUT):



AIDA Trigger Logic Unit (TLU) for synchronization of sub-systems:

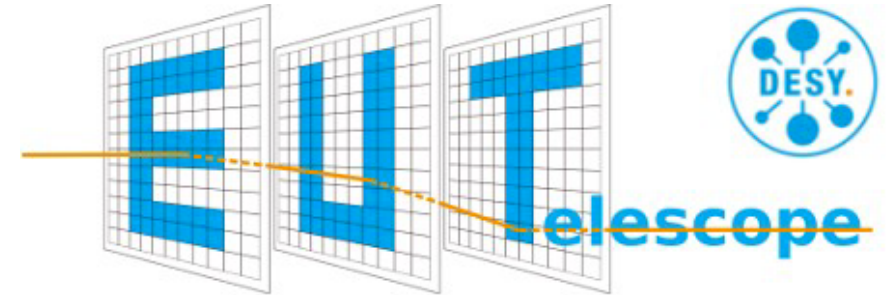


Schematic of integration of various sub-systems in EUDAQ:



# Track reconstruction of testbeam data with EU Telescope, *by Jan-Hendrik Arling*

## EU Telescope - A Generic Pixel Telescope Data Analysis Framework



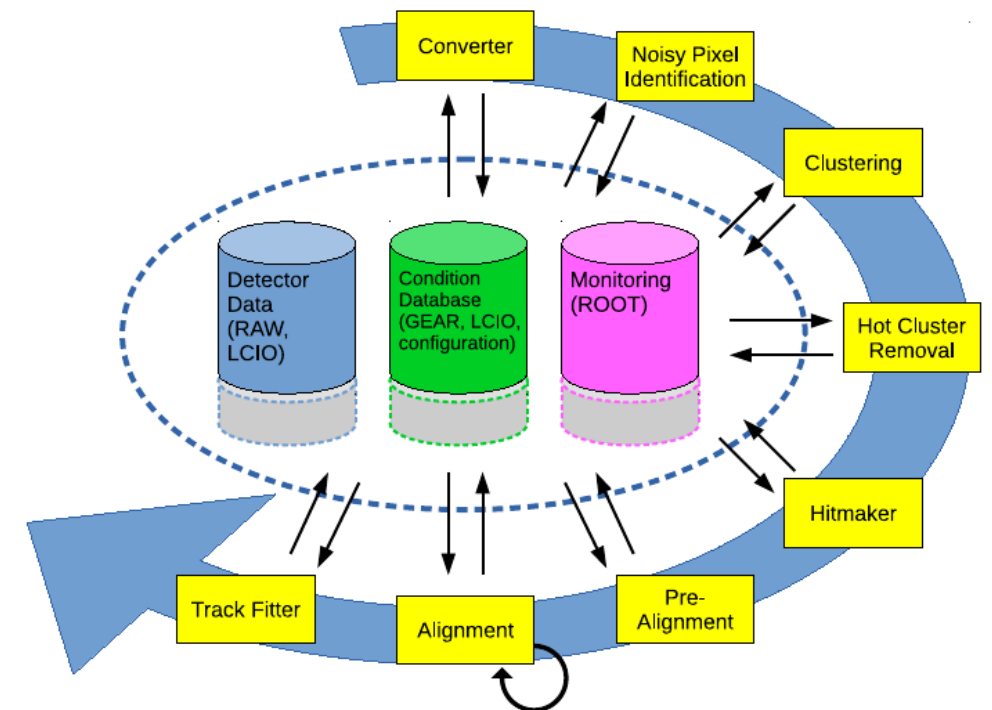
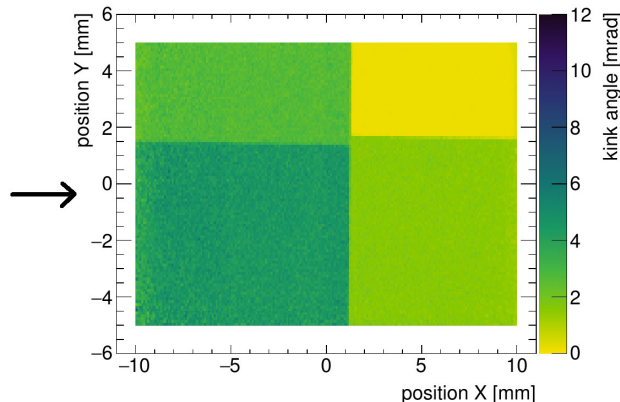
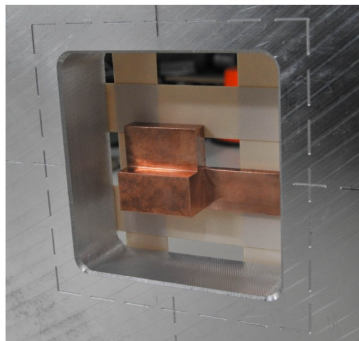
### Content:

- Introduction to EU Telescope
- Analysis flow from raw hit data to final track fits using the General Broken Line algorithm
- Hands-on with three examples (empty telescope, SUT, DUT)

### Recommended preparation:

- Take a look at and install required software:  
<https://github.com/eutelescope/eutelescope/wiki/Installation-and-preparation-for-BTTB8>

### Example of tutorial: passive material as scatterer (SUT)



# The Corryvreckan reconstruction software

## by Jens Kroeger



### Corryvreckan - The Maelstrom for Your Test Beam Data

#### Content:

- Guide through Corryvreckan and its functionality
- Learn how to configure & perform your analysis
- Learn how to use its online monitor
- Learn how to use flexible event building for various DUTs with different readout (e.g. shutter based or data driven) and various sub-systems (e.g. AIDA TLU)

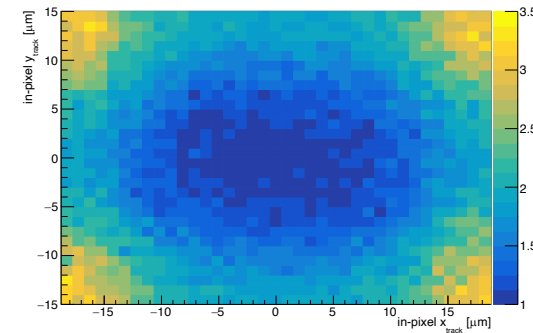
#### Recommended preparation:

- Clone the git repository with the example configuration file prior to the tutorial:  
`$ git clone https://gitlab.cern.ch/jekroeger/bttb8\_tutorial\_corryvreckan`
- Download the example data sets:  
`$ cd bttb8_tutorial_corryvreckan/data $ ./download_example_data_01.sh`  
(only this if the connection is slow)  
`$ ./download_example_data_02.sh`  
`$ ./download_example_data_03.sh`
- Optional: install Corryvreckan (v1.0.2 or latest) on your computer (different installation options will also be discussed in the tutorial)

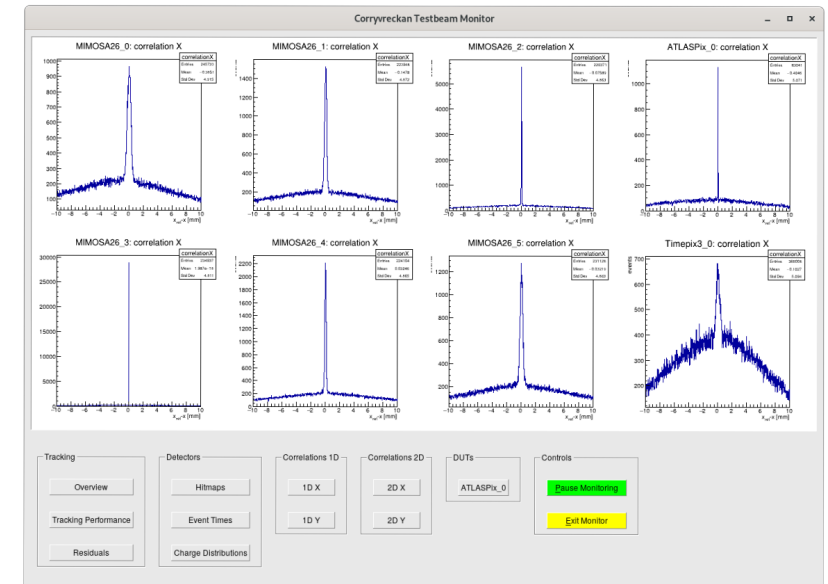
<https://cern.ch/corryvreckan>

<https://gitlab.cern.ch/corryvreckan/corryvreckan>

Example in-pixel cluster size plot from analysis performed in Corryvreckan:



#### Online monitor in Corryvreckan:



# Making the most of your 10 minutes of fame

## *by David Barney*

Addressed challenge: how to effectively present work accumulated over a long time in a few minutes?

### Content:

- Learn effective concepts to improve your presentation skills
- Hands-on activities to implement learned concepts
- Interactive tutorial – training of communication during learning process

### Recommended preparation:

- Your laptop
- Installation of Powerpoint or SW that can open/edit Powerpoint files
- The will to share your work with others 😊



Downloaded from: [https://www.ted.com/playlists/574/how\\_to\\_make\\_a\\_great\\_presentation](https://www.ted.com/playlists/574/how_to_make_a_great_presentation)



**Sign up for the tutorials until  
tomorrow morning!**

**We wish you a productive &  
interesting time during the workshop!**