

EP R&D Software

Graeme and Jakob



R&D
on EXPERIMENTAL TECHNOLOGIES

CERN's Experimental Physics Department has launched a process to define its R&D programme on new Experimental Technologies. The R&D work would span a 5 year period from 2020 onwards with a possible extension for another 2 years and cover detector hardware, electronics and software for new experiments and detector upgrades beyond LHC Phase-II.

1st Workshop
16 March 2018 (full day)
CERN, main auditorium

Please register!
<http://indico.cern.ch/e/EP-RD-workshop1>

4 working group sessions
Special R&D proposals

- Silicon detectors
- Gas detectors
- Calorimetry and light based detectors
- Detector Electronics
- IC Technologies
- High Speed Links
- Software
- Detector Magnets

 Experimental Physics
Department
EPD - Experimental Technologies

Personel News

- EP R&D Software Work Package has started
 - Moritz Kiehn will started working with Andi Salzburger in Tracking
- In the current 2020-1 fellow round we will try to recruit for
 - Simulation
 - Analysis



EP R&D Website

- Panos and Andrea are working on a new EP R&D website
 - <https://test-ep-rnd.web.cern.ch/>
- Please take a look and give any feedback you have to Jakob and me
 - Ideas for good software pictures would brighten things up

The screenshot shows the EP R&D website header with navigation links: R&D TOPICS, PEOPLE, PARTNERS, CONTACTS. The main heading is '7. SOFTWARE'. Below it, there is a paragraph of text describing the role of software in the HEP programme, followed by a paragraph about future demands on software. There are two links: 'Topic Website' and 'Mailing List'. Below this is a section titled 'RELATED TASKS' with four task cards: 7.1 Turnkey software stack, 7.2 Reconstruction at high pile up, 7.3 Faster Simulation, and 7.4 Efficient Analysis.

EP R&D R&D TOPICS - PEOPLE PARTNERS - CONTACTS

7. SOFTWARE

Software forms a critical part of the HEP programme, in the generation and simulation of physics events, in the data acquisition systems and triggers of the experiments, through to the reconstruction and analysis phases. Future accelerators, such as CLIC and FCC, plan to increase physics reach through precision and higher rates. Software must be developed to support the lifecycle of the associated experiments, from design and conception to data taking, reconstruction and analysis.

Support for these future physics programmes puts even greater demands on software than today, with greatly enhanced precision and event rates needed for simulation, combinatorial explosions for reconstruction in high pile-up environments and massive data volumes to be handled for analysis across our distributed computing infrastructure.

[Topic Website](#)
[Mailing List](#)

RELATED TASKS

- 7.1 Turnkey software stack
- 7.2 Reconstruction at high pile up
- 7.3 Faster Simulation
- 7.4 Efficient Analysis

Hardware News

- We plan for development and test hardware for the analysis and simulation tasks
- The specification for the simulation box is currently being finalised in collaboration with the IT purchase office
 - We ask for a quote for 1 RTX 8000, dual-socket AMD EPYC system
 - Extendible by a second GPU
 - Should expect ~15 weeks delivery time in the current situation
- The analysis task can use openlab hardware for the time being
 - Openlab systems have to be given back to the vendor
 - We plan to purchase a dedicated I/O development machine for Q2/2020
 - Enables experiments with NV-RAM and high-end SSDs

Next Meetings

- Track Reconstruction
 - 6 May, 10h
 - <https://indico.cern.ch/event/908022/>
- Meeting in June
 - HGCAL?