Track 8: Collaboration, Education, Training and Outreach

24th International Conference on Computing in High-Energy and Nuclear Physics, Adelaide, 4-8 November 2019

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Topics discussed:

1. Outreach
2. Education
3. Collaborative Tools
4. Collaboration & Training
5. Open Data
6. Web
All subjects from this track are extremely important for HEP and its computing

➢ Educations & Outreach:
  ○ to ensure continuous funding for HEP / fundamental science
  ○ to build people’s trust in science
  ○ to share our knowledge with future generations and to encourage them to study STEM

➢ Training and Collaboration:
  ○ to educate and motivate future scientists and engineers
  ○ to improve the way we work
Global outreach

Addressing diversity

➢ Masterclasses for Girls at International Day of Women and Girls in Science (11 February)
➢ World Wide Data Day

New public websites developments:

➢ New websites development (AMS, ATLAS, IPPOG, INSPIRE)
Global outreach

Developing engaging (real life) outreach content is imminent, new installations:

➢ Pinball machine (Explaining the CMS DAQ system)
➢ Fluidic Data (At CERN Computer Center)

Evaluation of the activities against their goals is necessary to make strategic decisions about the future direction of programmes, e.g.: STFC (Science Technology Facilities Council)
STEM education matters

Addressing children as early as possible

➢ Unplugged computing + poster (primary school students)
➢ Online tutorial from CMS (high-school students)

Why Dedicated Computing Exhibits?
- Existing CERN Computing outreach activities (largely driven by volunteers) experience high demand and interest
  - E.g. by the Women in Technology Community, CERN MicroClub, Expanding your Horizons
- Concern over future applicant pool for computing roles; both technical relevancy and diversity
- Computing literacy increasingly required for all scientific domains

Material to use in the classroom and beyond:

➢ Masterclasses - a day in a lab, high school students analysing open data
➢ IPPOG resource database with material (many languages)
Competencies portfolio of successful HEP researcher has changed (expanded) in the past years.

The demand for the HEP-oriented education triggered many great initiatives.

**Keep it up!**
Training is taken seriously (?)

Training is important: our software evolves, new products emerge every day, expertise from other fields is required to solve our problems.

As a community, we start to understand this and many training initiatives emerged at this conference:

- CERN Learning and Development poster
- Software Institute for Data Intensive Science
- Coherent vision for training
- Belle II training

This track helped us to discover these initiatives and reflect on the future vision for training.

- Could we envisage a community-wide solution for trainings?
Exploring new ways of collaboration based on open source software

- Office computing, email, chat, conferencing, document management...
- Collaboration with CS3 - distributed cloud system. This project will offer research labs and universities a global, collaborative environment for Data Science, Education and Outreach.
Open data is growing

Experiments releasing more open data batches

- ATLAS: New 13 TeV 2016 data samples
- CMS: Machine Learning, RAW/AOD/AODSIM
- OPERA: tau-neutrino events

Growing use of open data for research

- Independent research papers on INSPIRE
- CMS released full provenance information as well as raw data samples
Sustainable support for all T8 activities is needed

Many of the activities mentioned in our track are done by very motivated people, very often on voluntary basis.

➢ Could we change this?
➢ It should be more than “fun” for the staff involved.
➢ Including education, outreach and training in an organization/department strategy should be a must

Our Public Engagement Strategy, 2016-2021

Our vision is of a society that values and participates in scientific endeavour.

Our mission is to use our stories, communities, and facilities as the basis of world-class public engagement that inspires and involves people with our science and technology.

- Showcasing STFC science & technology
- Building the right partnerships
- Developing & supporting STEM influencers
- Improving our reach with diverse audiences
- Delivering high quality public engagement activities & outcomes
Universal Science

THANK YOU!

- We would like to thank the programme committee, advisors and organizers for making this track happen here in Adelaide at CHEP2019
- The speakers and poster presenters for the interesting topics
- The audience of the sessions for their interest and the vital discussions
- The organizers, helpers, and all the scientific secretaries on-site

Thank you Adelaide for your great hospitality this week!

Hope to see the outcomes of work from Track 8 at CHEP2021!