IRIS-HEP area SSC

Sudhir Malik (Univ. of Puerto Rico Mayaguez)
Peter Elmer (Princeton University)

Mailing lists
hsf-training-wg@googlegroups.com
full-team@iris-hep.org

IRIS-HEP Advisory Board Meeting/ Retreat
Fermilab/Chicago, 9-13 Sep 2019
Training Goal

- Establish a *community framework for software training* in order to prepare the scientific and engineering workforce required for the computing challenges of HEP experiments.

- For sustainability, *build “users” community* as well as *“developer” community*.

- Instead of new curriculum development, *leverage and build upon existing material* from the HEP and larger research community.

- *Build training activities and material into a “common good”* with a strong community of both instructors and participants, and with a feeling of *community ownership*.
Training Vision

HEP Software Training

Mentors

Tier 3

Advanced Ph.D. Students, Postdocs, Senior

Developer training

Tier 2

Advanced Root

Geant4

HEP domain training

Early Ph.D. Students, New Researchers

Experiment software training

Tier 1

Programming

Data science

C++

University courses

Early Ph.D. Students

Carpentries workshops tailored for HEP

CoDaS-HEP (US)

GridKa school (DE)

INFN ESC school (IT)

CMSDAS

ATLAS tutorial series

LHCb starter kit

ROOT Data

Python

Git

Unix
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### Software Carpentry Workshop (1-2 April 2019, Fermilab)
- [https://indico.fnal.gov/event/20233/](https://indico.fn前置下载/FIRST-HEP))

### Software Carpentry at CERN (27-29 November 2019)
- [https://indico.cern.ch/event/834411/](https://indico.cern.ch/event/834411/)

### HEP Software/Computing Training Survey (Feb, 2019)
- [LINK to the survey](https://www.surveymonkey.com/results/SM-X7BFPPF3Y3V/)

### CoDaS-HEP (22-26 July, 2019, Princeton)
- [http://codas-hep.org](http://codas-hep.org)

### Brainstorming - IRIS-HEP Institute Retreat (12-13 Sept. 2019 Fermilab)
- [https://indico.cern.ch/event/840472/](https://indico.cern.ch/event/840472/)

### An introduction to programming for STEM teachers (3-4 June, UPRM)
- [https://indico.cern.ch/event/817539/](https://indico.cern.ch/event/817539/)

### Machine Learning Workshop/Hackathon (24-26 April 2019, UPRM)
- [https://indico.cern.ch/event/809812/](https://indico.cern.ch/event/809812/)

~ 180 people trained

More info on events: [https://iris-hep.org/](https://iris-hep.org/)
Training Survey  
(Jan-Feb 2019)

- Input on training needs and current training practices for various topics in HEP related to software/computing and related software centric areas
- ~ 350 users (mostly postdocs, students, mostly LHC)

Areas that need for more training materials/courses to help your research

For more info - HSF Training survey - by David Lange
Software Carpentry Workshop (Fermilab)
(1-2 April 2019)

Agenda:
- https://indico.fnal.gov/event/20233/
- Version Control with Git
- Python Foundations
- Building Programs with Python
- Data analysis - Numpy, Pandas
- Data analysis Cont. and Graphs
- Advanced Python and PyROOT, uproot
- Post-workshop Survey
ML Hackathon (Puerto Rico)
(24-26 April, 2019)
https://indico.fnal.gov/event/20233/

Agenda: https://indico.cern.ch/event/809812
- Talks ML/Data science Applications - Physics, Computer Science, Math, Engineering
- Machine Learning, Deep Learning, ANN
- Hands-on exercises
- Hackathon on LHC Physics
An introduction to programming for STEM teachers (Puerto Rico) (4-5 June, 2019)

Agenda: https://indico.cern.ch/event/817539
- Introduction to Processing and p5js
- Python and Colab
- Basics of python, Jupyter notebooks, and Colab (hands-on)
- Data analysis with python
FIRST-HEP/ATLAS Training (Argonne)
(10 June, 2019)

Agenda:
- https://indico.cern.ch/event/827231/
- A little Unix
- A lot of Git
- Numpy introduction
- PyROOT
- uproot
3rd CoDaS-HEP School (Princeton)
(22-26 July, 2019)

Agenda: https://codas-hep.org/
Parallel Programming
Scientific Python Ecosystem
Big Data Tools and Techniques
Machine Learning
Practical skills like performance evaluation, use of git
FIRST-HEP/ATLAS Training (LBNL)
(19-21 August, 2019)

Agenda: https://indico.cern.ch/event/816946/
- Version Control Essentials
- Jupiter
- Build Systems : From gcc to cmake
- Continuous Integration : Why and how?
IRIS-HEP Fellows Program

- Promote the development of advanced research software skills by providing opportunities for undergraduate and graduate students to connect with mentors within the larger HEP and Computational/Data Science community.

- Preparing for a more formal/organized call soon for projects and proposals for a round of fellows in the fall.


Current IRIS-HEP Fellows

- **Raghav Kansal**
  - University of California, San Diego
  - IRIS-HEP Fellow
  - Jun-Aug 2019

- **Pratyush (Reik) Das**
  - Institute of Engineering & Management (Kolkata)
  - IRIS-HEP Fellow
  - Jun-Sep 2019
Summary/Plans

- Training has picked up momentum
- In partnership with Software Carpentries: https://software-carpentry.org/
- First training event outside US (at CERN)
- Blueprint meeting at Fermilab this month
- Carpentries instructor training this fall
- Scale the activities and iterate the curriculum
- JLAB interest in training
  - Staff members interested in expanding training opportunities for staff and users and train a couple to as serve an instructors
  - In conversation to organize software training event
- Spread activities to other labs/experiments/non-HEP
Related Links/Info

  - General public announcement mailing list for IRIS-HEP events, talks, meetings, workshops, opportunities for training and job opportunities (subscribe to)
  - [announcements@iris-hep.org](mailto:announcements@iris-hep.org)

- HSF (HEP Software foundation) - [https://hepsoftwarefoundation.org](https://hepsoftwarefoundation.org)
  - General Information about HSF (subscribe to): [hsf-forum@googlegroups.com](mailto:hsf-forum@googlegroups.com)
  - Discussions and activities in the HEP Software Foundation mailing lists can be found here (General and Dedicated Forums): [https://hepsoftwarefoundation.org/forums.html](https://hepsoftwarefoundation.org/forums.html)
  - You can contribute [https://hepsoftwarefoundation.org/cwp/cwp-working-groups.html](https://hepsoftwarefoundation.org/cwp/cwp-working-groups.html)
  - HSF Events/Workshops - [https://hepsoftwarefoundation.org/events.html](https://hepsoftwarefoundation.org/events.html)

  - Funding for participants and lecturer support for Training