Jupyter workshop (ICALEPCS2019)

Report of Contributions

https://indico.desy.de/e/jupyter-icalepcs2019

Contribution ID: **0** Type: **not specified**

Jupyter Notebook and Ecosystem

Saturday 5 October 2019 09:00 (30 minutes)

A brief introduction to the Jupyter Notebook and the ecosystem of tools that are based on it. Includes JupyterHub, JupyterLab, NBDIME, NBVAL, Binder.

Presenter: Prof. FANGOHR, Hans (European XFEL GmbH)

Contribution ID: **1** Type: **not specified**

Status updates from Soleil, CERN, European Southern Observatory, J-PARC MLF, Max IV

Saturday 5 October 2019 09:30 (30 minutes)

Contribution ID: **2** Type: **not specified**

JupyterLab Tutorial

Saturday 5 October 2019 10:30 (2 hours)

JupyterLab is the next generation of the notebook interface. This talk will start with an overview of the JupyterLab interface to show how it can be used for more than just editing notebooks. JupyterLab was designed with extensibility in mind, so next I will show how to create a plugin that adds custom functionality to the interface. Then I will show some existing extensions that target the scientific ecosystem, including support for exploring HDF5 files. Finally, I will end with an exploration of new features coming to JupyterLab including real time collaboration.

Presenter: Mr SHANABROOK, Saul (Quansight)

Contribution ID: **3** Type: **not specified**

Jupyter for processing neutron event data at ESS

Saturday 5 October 2019 14:00 (30 minutes)

Presenter: Dr TAYLOR, Jonathan (European Spallation Source)

Contribution ID: **4** Type: **not specified**

Jupyter at Brookhaven National Laboratory

Saturday 5 October 2019 14:30 (30 minutes)

Presenter: Dr ALLAN, Daniel B. (Brookhaven National Lab)

Contribution ID: **5** Type: **not specified**

Jupyter for Accelerator Physics

Saturday 5 October 2019 15:00 (20 minutes)

RadiaSoft operates a public JupyterHub instance at jupyter.radiasoft.org, which is used for workshops, the US Particle Accelerator School (USPAS), our clients, and the accelerator community at-large. This free, public service simplifies classroom startup at USPAS, because all the accelerator codes and tools they might need are already installed. We deliver models to our clients via IPython notebooks who can run them instantly on JupyterHub. We make it easy for instructors to share notebooks during a workshop with all their students. Additionally, accelerator physicists at RadiaSoft use Jupyter as an "IDE"for developing models and running simulations. Most of the codes we use are Python-wrapped so IPython notebooks are an ideal tool for documenting the parameters associated with a model. RadiaSoft's Jupyter Docker image contains most of the key accelerator physics codes including elegant, EPICS, FBPIC, JSPEC, OPAL, Radia, Shadow3, SRW, Synergia, Warp, Zgoubi as well as support tools such as SciPy, Tensorflow, and TeX. The image is large (10GB), but allows our staff, clients, and the public to work with all codes simultaneously and seamlessly. In order to facilitate the various use cases, we have implemented and open-sourced some subclasses and tools. RSDockerSpawner supports resource pools that allows us to manage our public, workshop, and private Jupyter instances on a single cluster. An MPI wrapper allows simple and secure container-based execution of MPI-based codes by our staff. Users can also persist their Jupyter environment customizations so that they survive container restarts. Here we will provide an overview of our capabilities and detail some example use cases for the simulation of particle accelerators.

Presenter: Dr EDELEN, Jonathan (RadiaSoft LLC)