

HSE/IRIS-HEP Python for Analysis Training

Jul 16, 2024

<p>Instructors:</p> <ul style="list-style-type: none">• Marta Czurylo• Jonas Rembser• Vincenzo Eduardo Padulano• Henry Schreiner	<p>Mentors:</p> <ul style="list-style-type: none">• Roy Cruz Candelaria• Alexander Moreno• Richa Sharma• Andres Rios-Tascon	<p>Local organising committee:</p> <ul style="list-style-type: none">• Richa Sharma• Sudhir Malik• Jim Pivarski• Lera Lukashenko• Holly Szumila-Vance• Alexander Moreno
--	---	---



**If you aren't recording this on Zoom,
enable captioning and start
the recording ...**

(just a reminder)

Everyone is Welcome

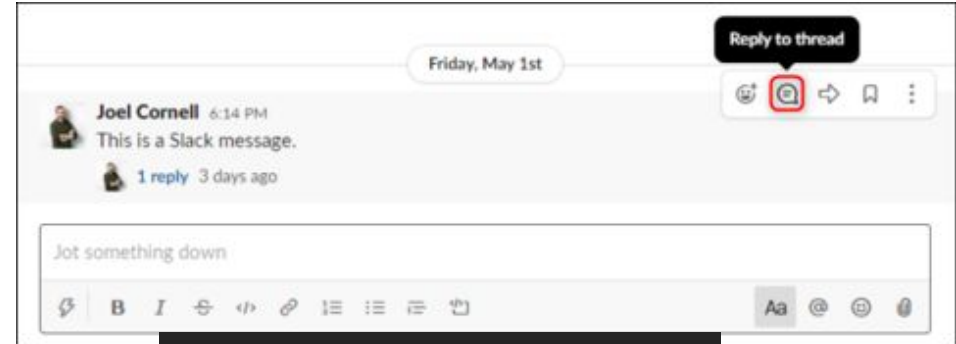
- You are physicists working in international collaborations. All of you should know this page:
 - [The CERN code of conduct](#)
- Built on a set of core CERN values →
- Taken together, provide the basis for respect: respect for others, respect for the organization and respect for its mission.
- We encourage a culture of openness where all contributors feel free to engage in the discussion.



We are here to help!

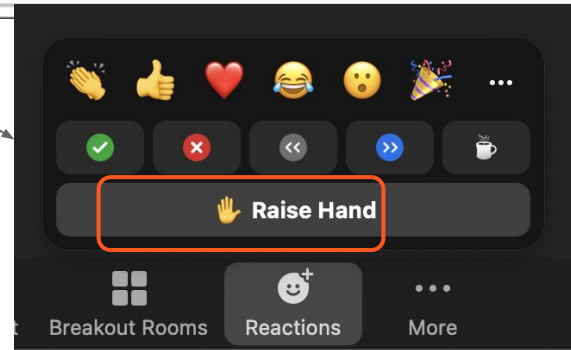
- Please use the **Slack channel** for extended questions during the session (it's easier to keep track for us than the zoom chat)

Use the 'reply to thread' feature to keep everything sorted



- Dedicated time for questions:
Use the 'raise hand' feature to speak

There is no such thing as a "stupid question"!

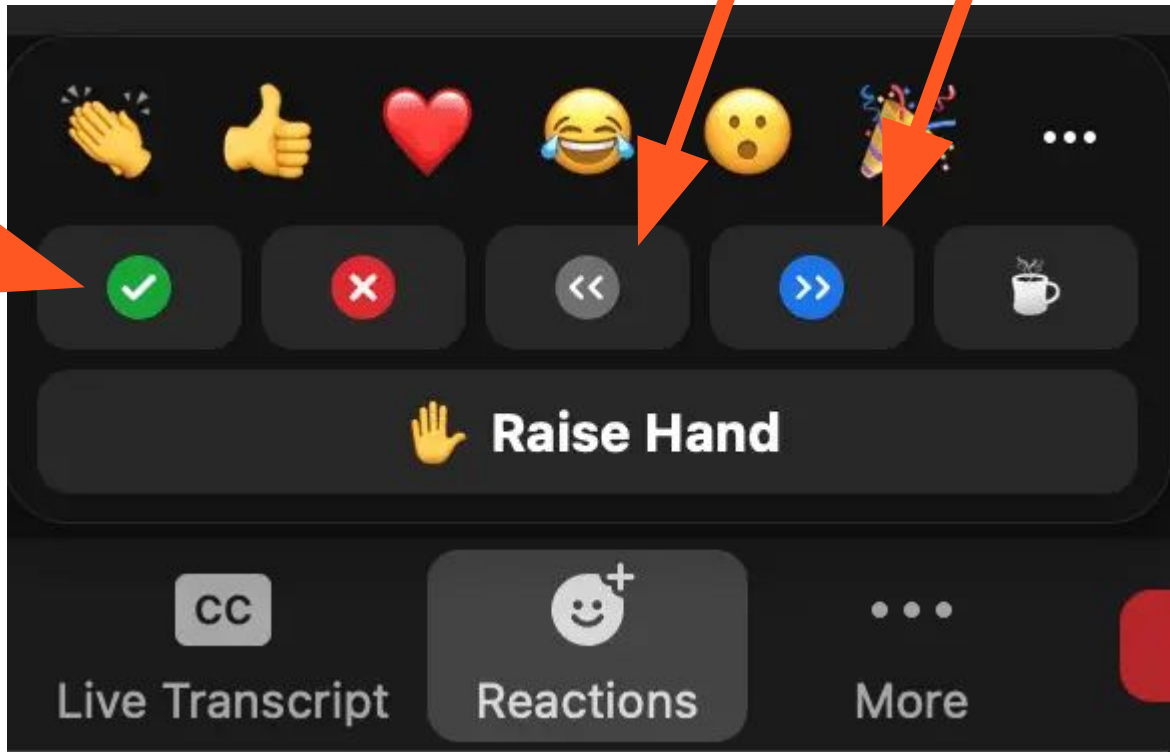


Feedback

slower

faster

yes/no



If you haven't done yet...

[1] Join the Slack channel: [invite](#)

If you have troubles to join, let us know now.

[2] Follow the setup pages

- ROOT ([setup](#)):

<https://github.com/codespaces/new/root-project/student-course?quickstart=1>

- Scikit-HEP ([setup](#)):

<https://github.com/codespaces/new/hsf-training/hsf-training-scikit-hep-webpage?quickstart=1>



Schedule

Welcome

Help with Setup
[8:00 ET]

Introduction & group
picture
[8:15 - 8:30 ET]

ROOT in Python
(PyROOT), ROOT in
Jupyter
[8:30 - 9:30 ET]

Break
9:30-9:50

Histograms, graphs and
basic I/O
[9:50-10:50 ET]

Break
10:50-11:10

RDataFrame
[11:10-12:00 ET]

Lunch Break
12:00-13:15

Scikit-HEP 1
[13:15-14:35 ET]

Break
14:35-14:55

Scikit-HEP 2
[14:55-16:15 ET]

**Meet your
instructors!**



Marta Czurylo

*Particle Physics PhD,
Fellow at ROOT team*

My research:

ROOT RDataFrame R&D,
ATLAS diHiggs analysis: $HH \rightarrow 4b$ (PhD)

My expertise is:

HEP Data analysis, ROOT

A problem I'm grappling with:

Improved user experience with Distributed RDataFrame

I've got my eyes on:

Improving analysts experience with RDataFrame

I want to know more about:

Advanced C++, distributed computing





Jonas Rembser

Scientific Software Developer at CERN

My research:

ROOT / RooFit R&D / PyROOT
Statistical analysis in HEP

My expertise is:

HEP Data analysis, ROOT

A problem I'm grappling with:

Making RooFit ready for more data and more complex analyses

I've got my eyes on:

GPUs and Automatic Differentiation

I want to know more about:

New Programming languages like Julia and Rust





Vincenzo Eduardo Padulano

*Computer Science PhD,
Staff Computing Engineer @ CERN*

My research:

ROOT R&D
(RDataFrame, RNTuple, Python)

My expertise is:

Distributed computing and data analysis interfaces

A problem I'm grappling with:

Making ROOT ready for the next-generation HEP challenges

I've got my eyes on:

Improving analysts experience with RDataFrame

I want to know more about:

User workflows and programming patterns





Henry Schreiner

*Research Software Engineer /
Computational Physicist*

<https://iscinumpy.dev>

<https://github.com/henryiii>

<https://learn.scientific-python.org/development>

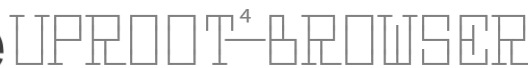
My research: *Histograms, Packaging and distributions, tutorials, C++ - Python, Scikit-HEP, scikit-build*

My expertise is: Python, Python packaging, Homebrew, C++ interop (pybind11), Pyodide (web assembly CPython port), CMake, Ruby, websites, CI, scikit-build, Rust

A problem I'm grappling with: Compiled Python packaging

I've got my eyes on: Rust and WebAssembly

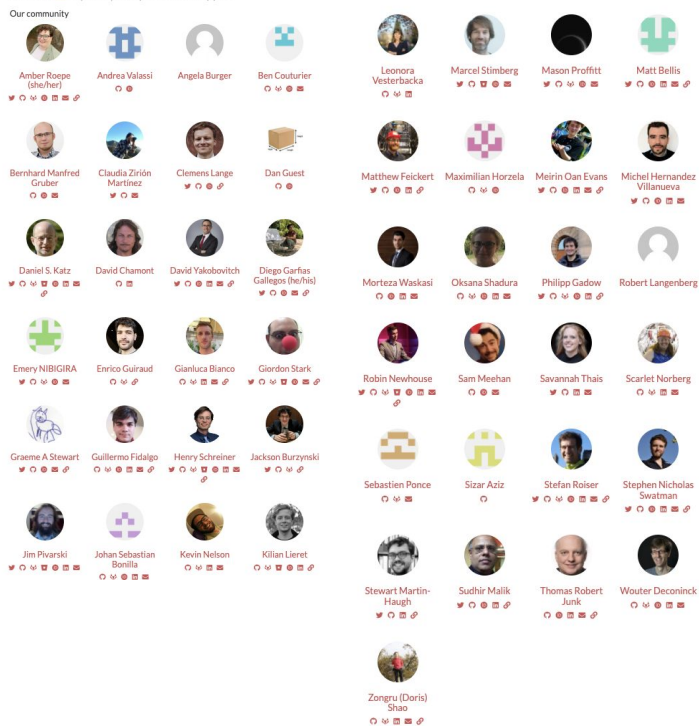
I want to know more about:
How people are using our tools.



HSE Educator/Mentor community

<https://hepsoftwarefoundation.org/training/educators.html>

Here is the list. Select for a special thank you for everyone who made our workshop possible.



- **Join our hackathons**
 - **In 1 or more topics**
- **Join our community**
- **Become training Educator**
 - **a mentor, facilitator, instructor**
- **Open a PR for any of our modules**

Group picture!