



Pre-CHEP HSF workshop on training

Krakow 2024



Organizers



Alexander
Moreno Briceño



Jim Pivarski



Lera
Lukashenko

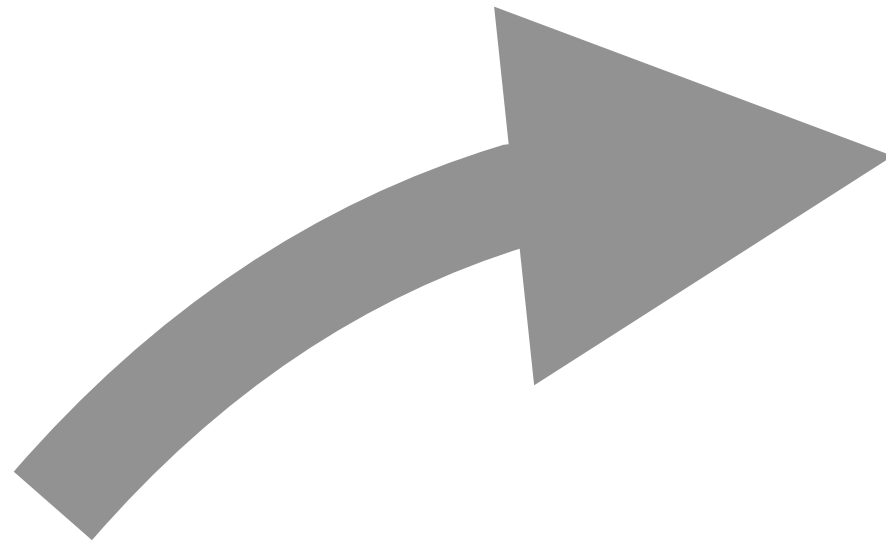


🎉 Special thanks to the CHEP Local Organizing Committee 🎉

- Tomasz Szumlak (AGH)
- Agnieszka Obłąkowska-Mucha (AGH)
- Bartosz Mindur (AGH)
- Tomasz Bołd (AGH)
- Bartosz Baliś (AGH)
- Agnieszka Dziurda (IFJ)
- Dominik Derendarz (IFJ)
- Piotr Salabura (UJ)
- Grzegorz Korcyl (UJ)
- Bartłomiej Rachwał (AGH)



newcomer



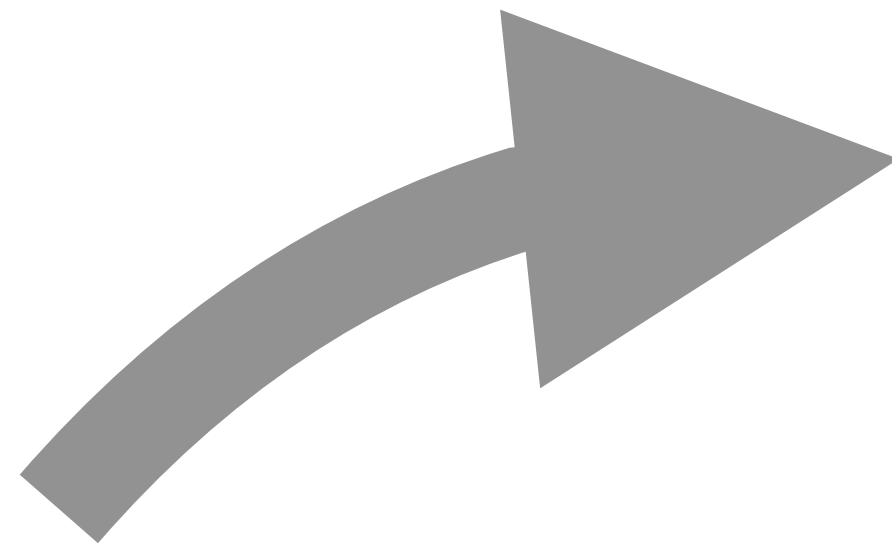
newcomer



sees software
and jargon



newcomer



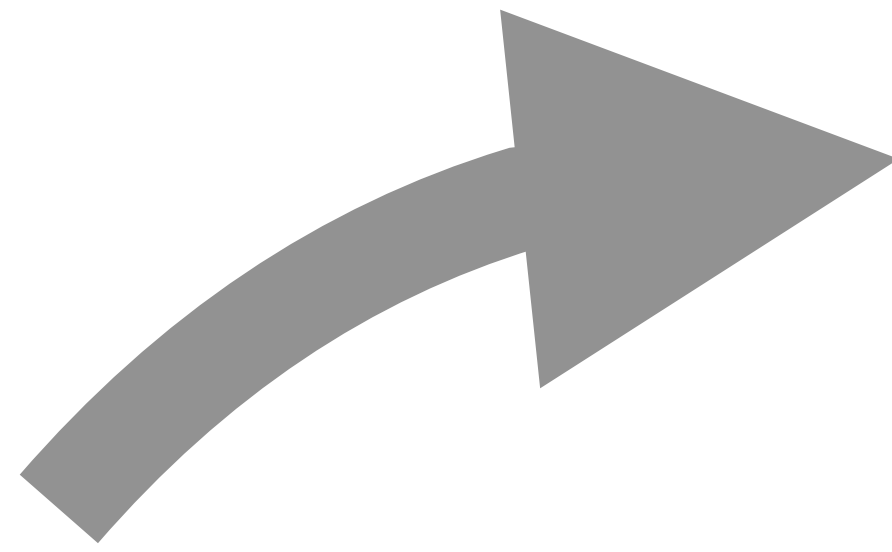
sees software
and jargon



spends hours to write a
simple command/execute
code/etc



newcomer



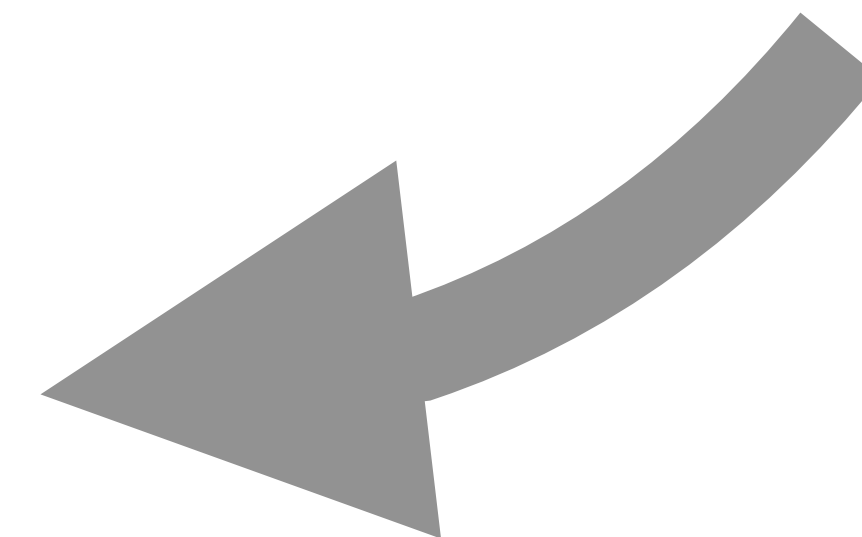
sees software and jargon



spends hours to write a simple command/execute code/etc



sadness and despair





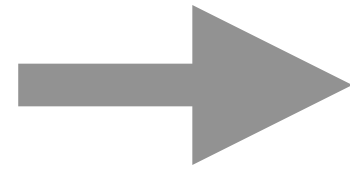
sadness and despair



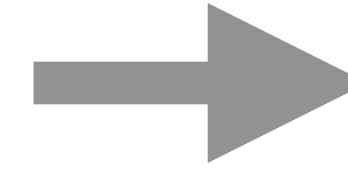
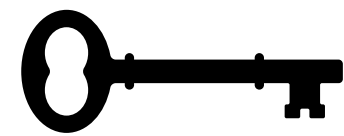
happy



sadness and despair



Trainings



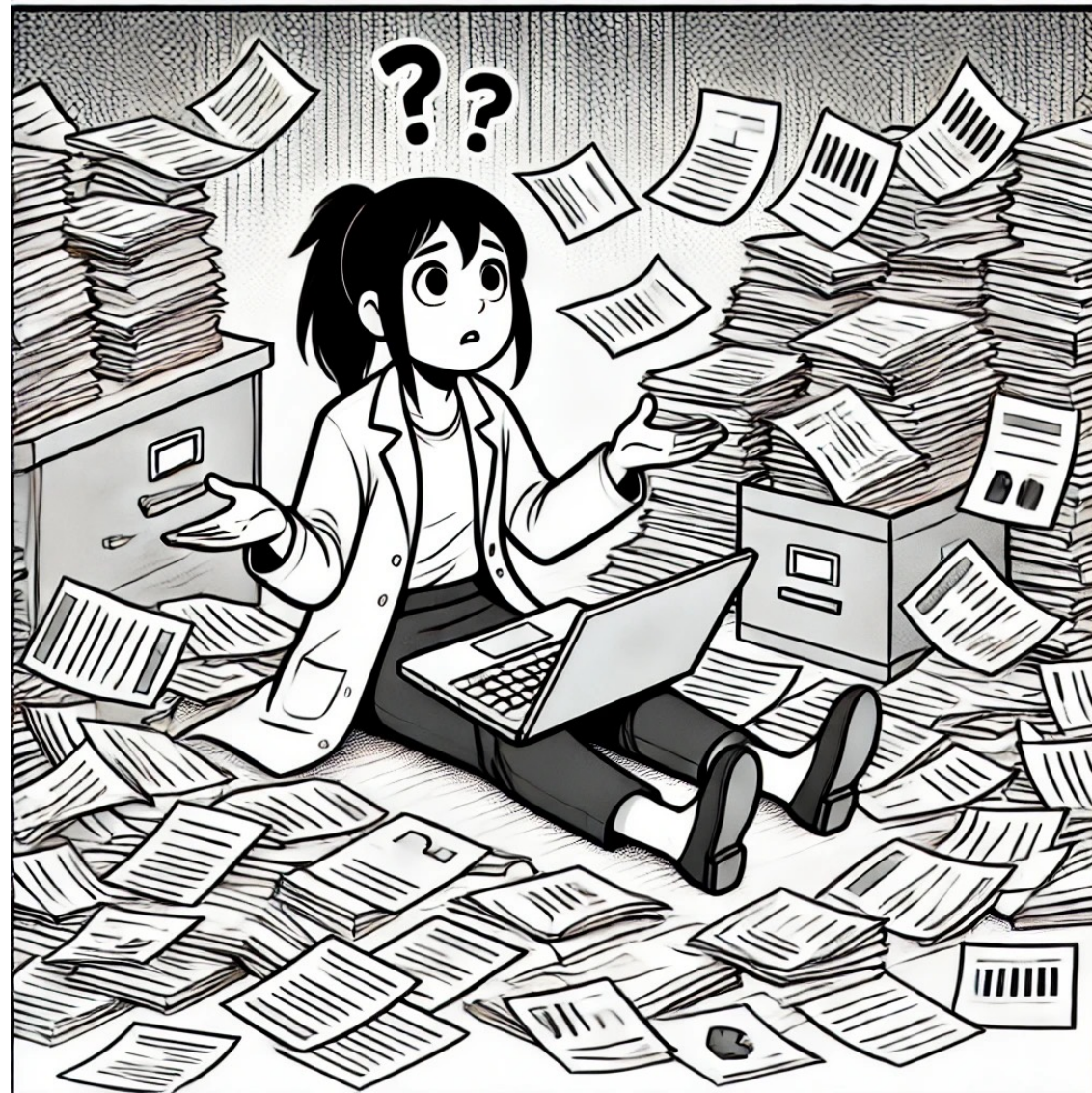
happy



This is me

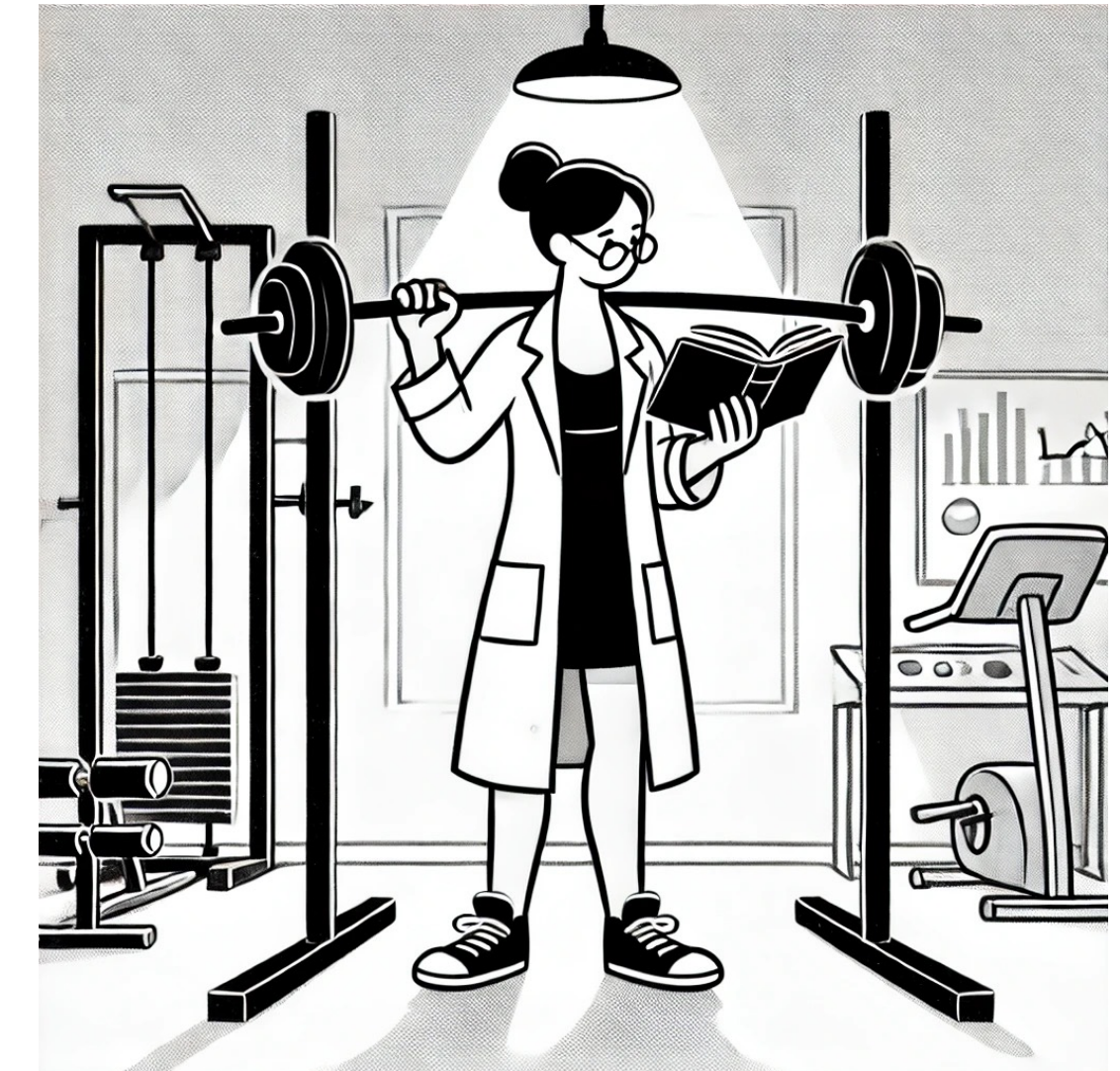
LHCb Starterkit 2019

Problem



Software is critical

Keep pace and follow industry standards



Almost every scientist needs to be trained post their degree



SUSTAINABILITY

- Open source
- Community maintenance
- Incentives and recognition



SUSTAINABILITY

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UNITY

- Easy to find material and information
- One entry point
- Cross-experiment content
- Guide, support, and coordinate



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SCALABILITY

- Teachable by **multiple instructors**
- **Self-study** is important

SUSTAINABLE

UNIFIED

SCALABLE

- New [HSF Training Center](#)
- Currently 25 training modules
- Aim: **starting point** for all HEP trainings

The screenshot displays the HSF Training Center website. At the top, the title "HSF Training Center" is shown in a dark blue header, with the subtitle "Training and educational material for the High Energy Physics community." Below the header, there are navigation tabs for "Curriculum" and "All Tutorials". A search bar labeled "Search Anything..." is positioned below the tabs. Underneath the search bar, there are filter buttons for "Beginner", "Advanced", "Stable", and "Beta", along with a "Language..." dropdown and a "Videos" toggle switch. The main content area lists three training modules:

- ROOT**: The most famous data analysis framework used in HEP. Includes a GitHub link.
- UnROOT.jl**: Open ROOT files in Julia! Includes a GitHub link and a "Beta testing" button.
- uproot**: Reading and writing ROOT files without having to install ROOT. Includes a GitHub link and a "Beta testing" button.

Example 1: Training on Analysis Pipelines (Preservation)

- Docker/Podman, Singularity/Apptainer, CI/CD with github/gitlab
- Emphasis on self study with videos + live lectures
- Small-group virtual mentoring sessions + 24h support on slack

The image shows a screenshot of a training module page titled "Introduction to Singularity/Apptainer". The page includes a description of Apptainer, prerequisites, HSF Software Training information, and a schedule table. A video player overlay is visible on the right side of the page, showing a playlist of six videos.

Introduction to Singularity/Apptainer

Apptainer (formerly known as Singularity) is a free and open-source container platform that allows you to create and run applications in isolated images (also called "containers") in a simple, portable, fast, and secure manner. It performs operating system level virtualization known as containerization. Many container platforms are available, but Apptainer is designed to bring containers and reproducibility to the scientific community and High-Performance Computing (HPC) use cases. Using Apptainer, developers can work in reproducible environments of their choice and design, and these complete environments can be easily copied and executed on other platforms.

This is an introduction to Singularity/Apptainer, its motivations and applications in HEP.
Based on the [Apptainer user guide](#).

Prerequisites

- Basic knowledge of the Unix Shell, e.g., from the [carpentry course](#).
- Access to a computing system with Apptainer/Singularity available. It can either be installed locally, or the system can be accessed via a remote environment and access to CVMFS.

HSF Software Training

This training module is part of the HSF Software Training Center, a series of training modules designed to provide the skills needed as they enter the field, and in parallel, instill best practices for writing software.

Schedule

	Setup	Download files required for the lesson
00:00	1. Introduction	What issues motivated the creation of Apptainer? What are the differences between Docker, Singularity, and Apptainer?

Intro to Singularity/Apptainer

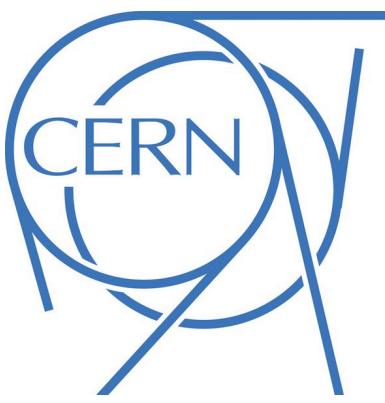
HEP Software Foundation - 1/8

- 1. Intro to Singularity/Apptainer #0 - Setup (5:48)
- 2. Intro to Singularity/Apptainer #1 - Introduction (12:11)
- 3. Intro to Singularity/Apptainer #2 - Containers and Images (13:58)
- 4. Intro to Singularity/Apptainer #3 - Building Containers (27:24)
- 5. Intro to Singularity/Apptainer #4 - Definition files (12:48)
- 6. Intro to Singularity/Apptainer #5 - Sharing files between hosts (9:21)

Example 2: C++ Course



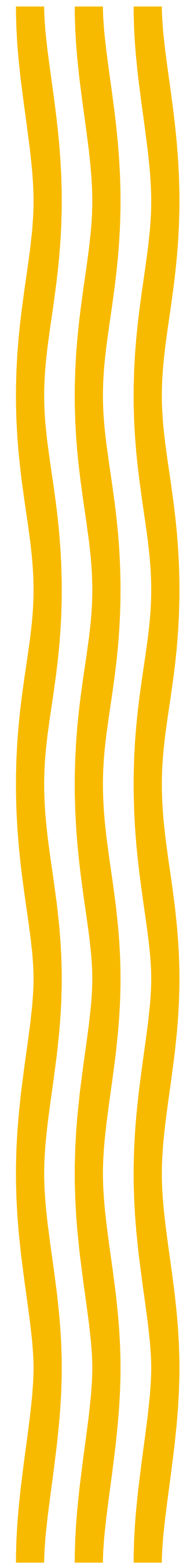
SIDIS
Software Institute for
Data-Intensive Sciences



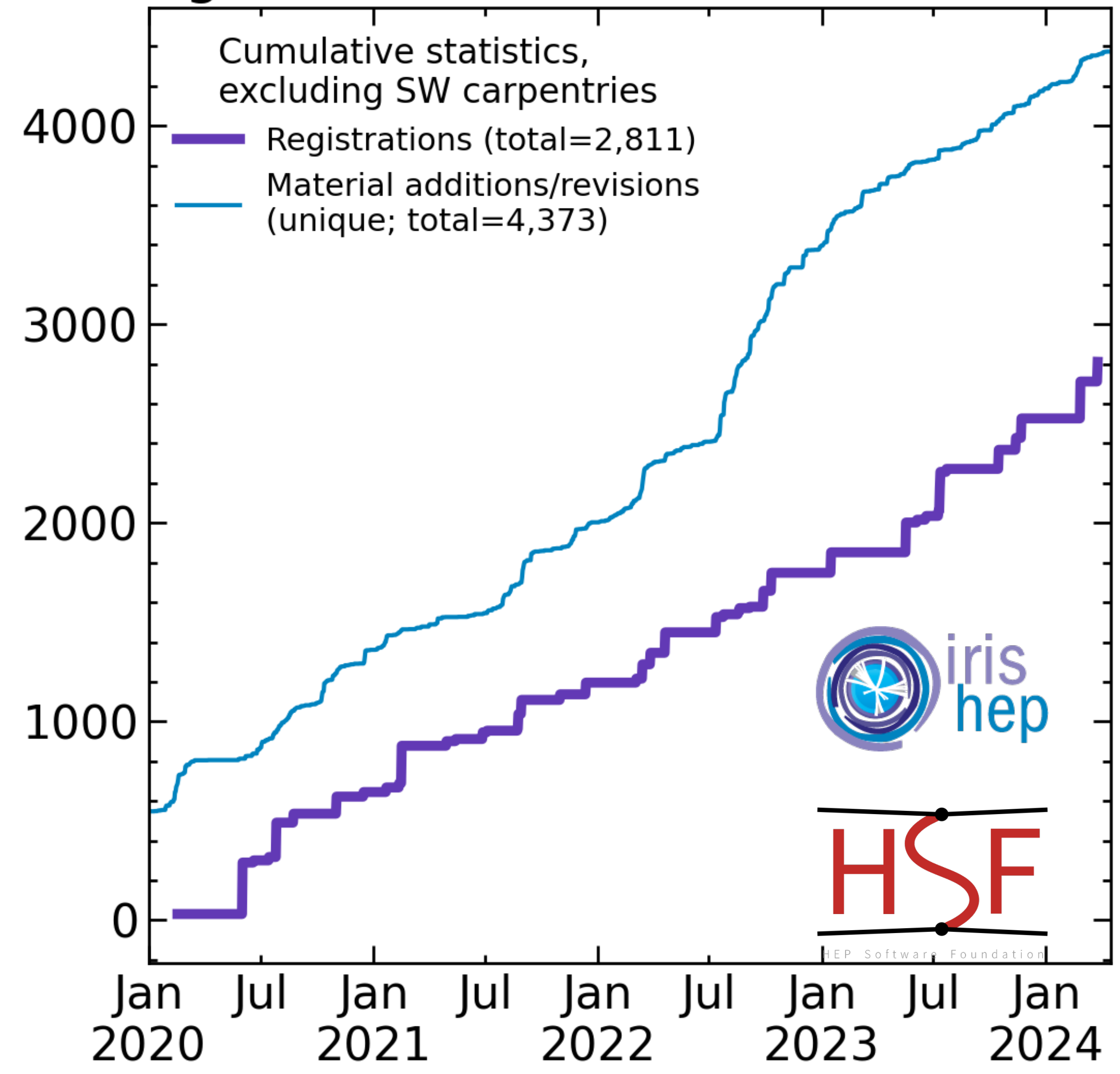
Originally developed by **S. Ponce**, now community effort driven by B. Gruber, S. Hageboeck et. al.

**554 slides, 698 pages, > 1.1k commits
10 events till now**

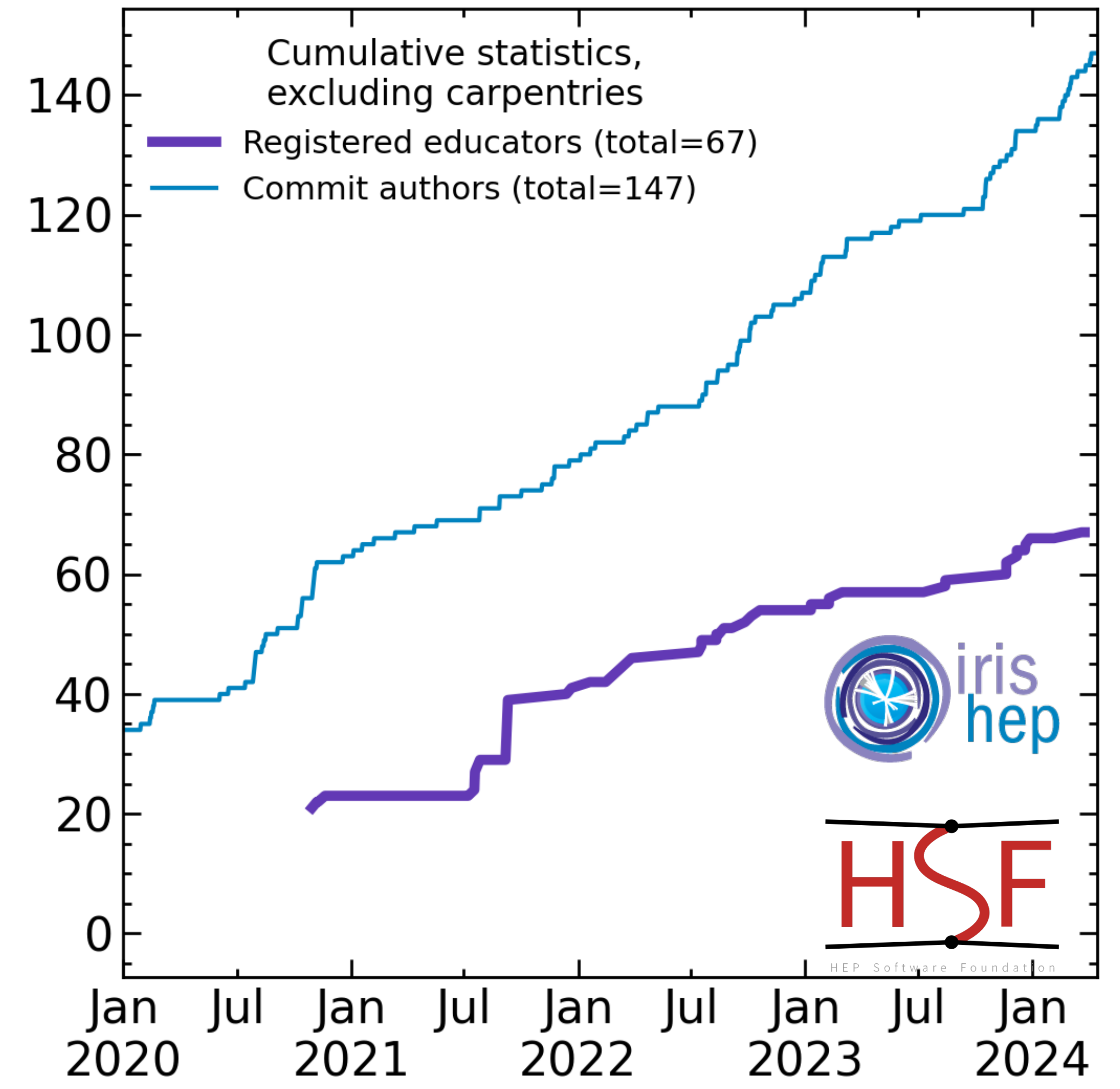
SCALABLE UNIFIED SUSTAINABLE



Registrations and material revisions



Educators



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SUSTAINABLE



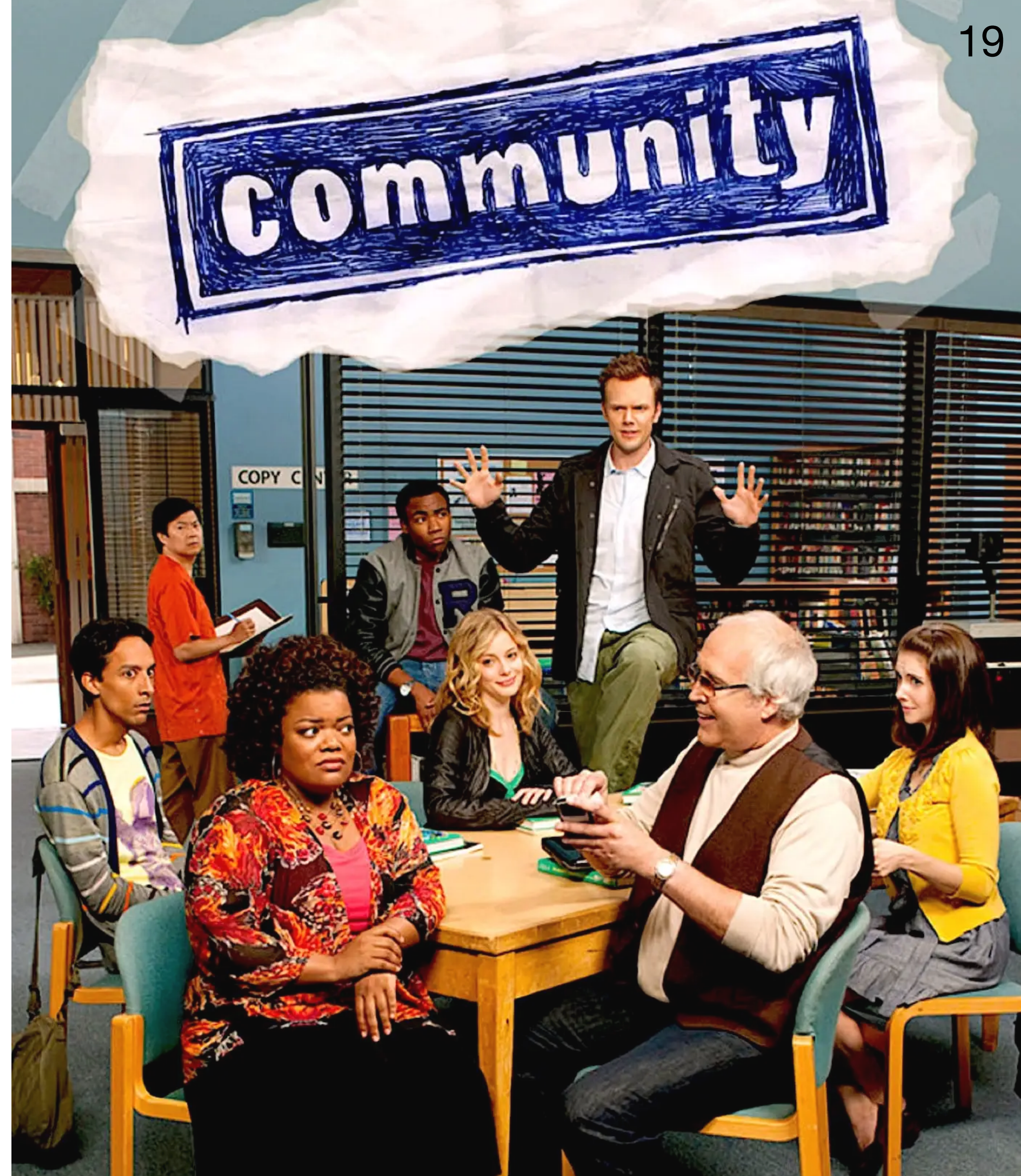
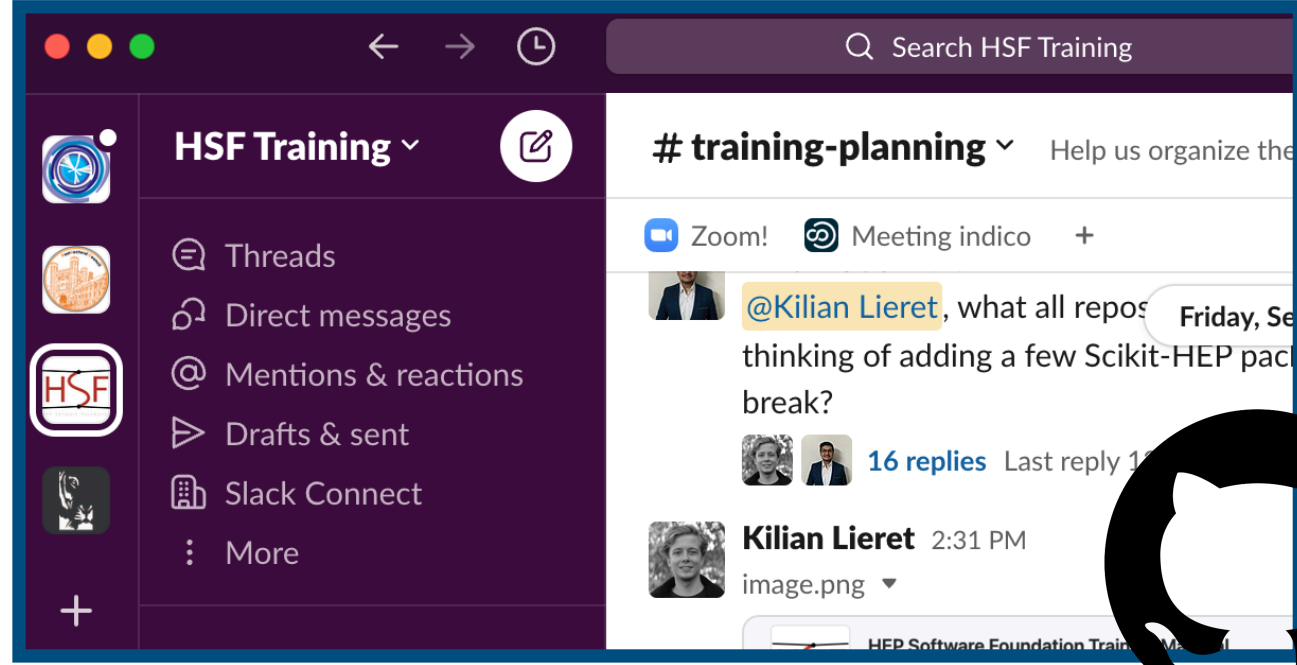
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Communication



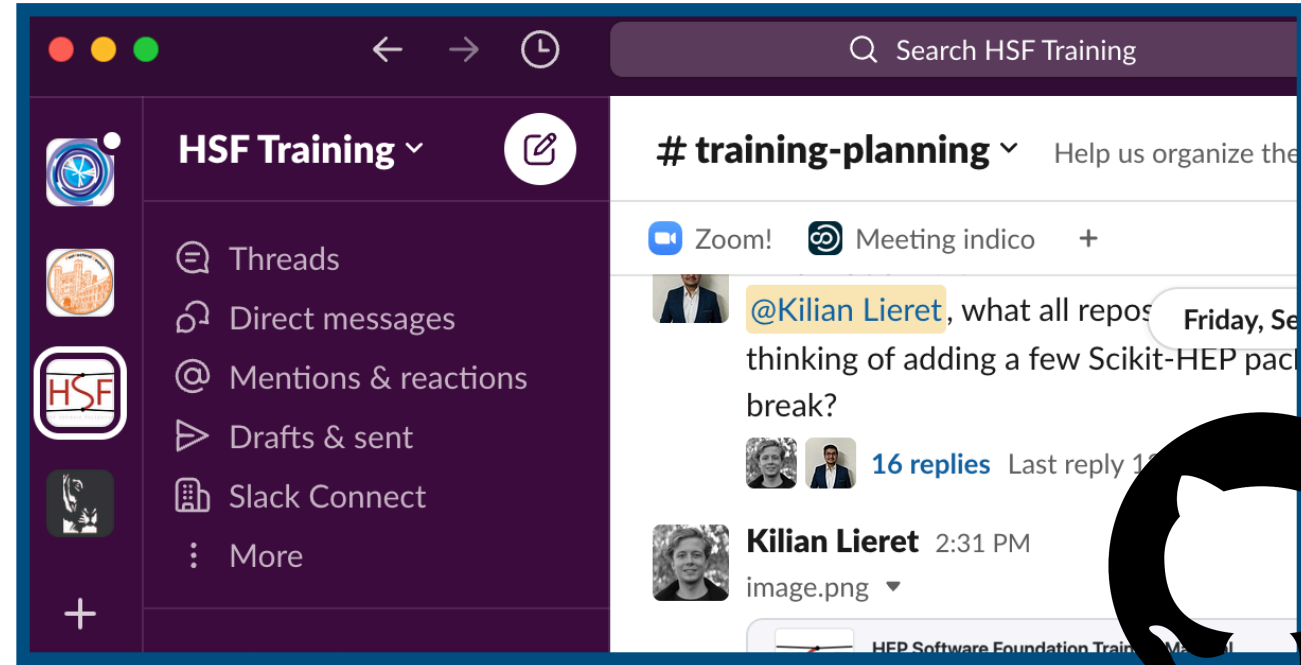
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SCALABLE



Communication



GitHub

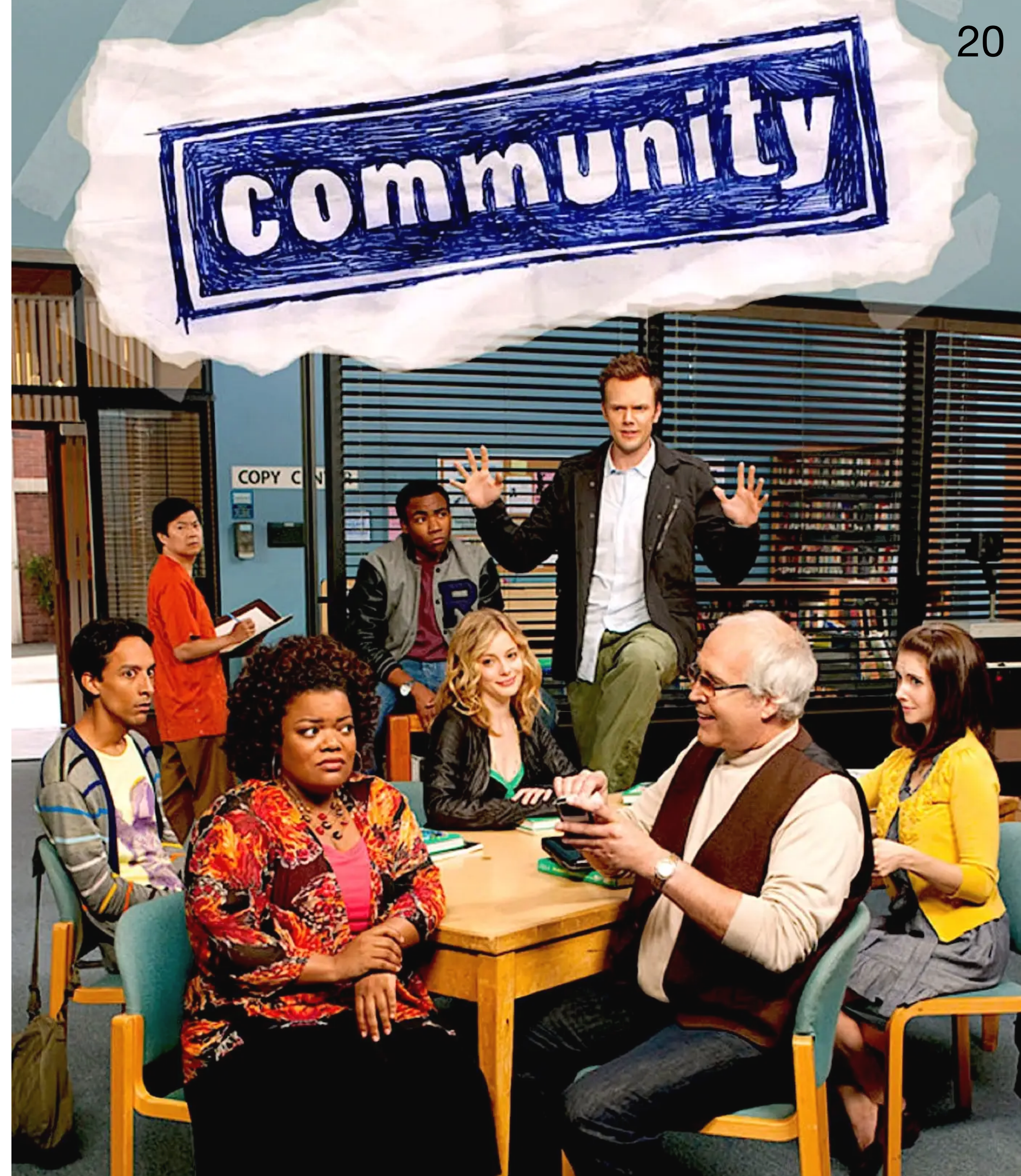
Guidance

HSF Training Hackathon Checklist

Let's streamline our organization and make sure we don't forget anything!

HSF Training Workshop Checklist

Let's streamline our organization and make sure we don't forget anything!

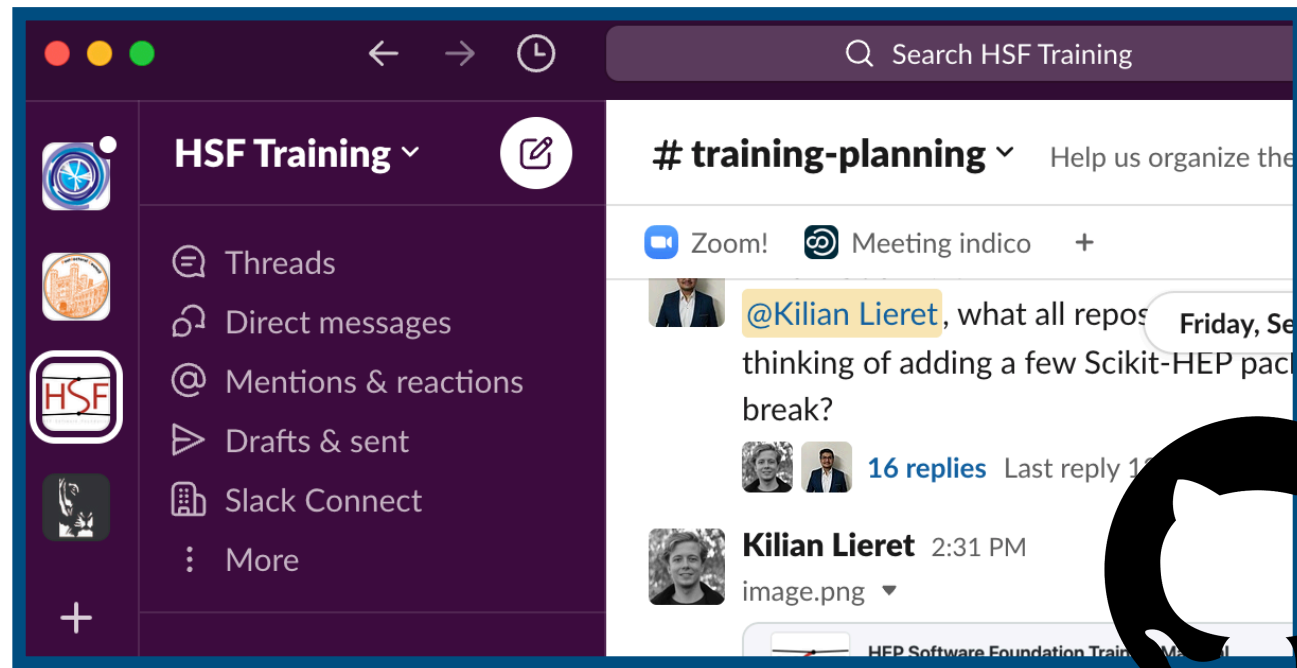


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Communication



GitHub

Guidance

HSF Training Hackathon Checklist ✓

Let's streamline our organization and make sure we don't forget anything!

HSF Training Workshop Checklist ✓

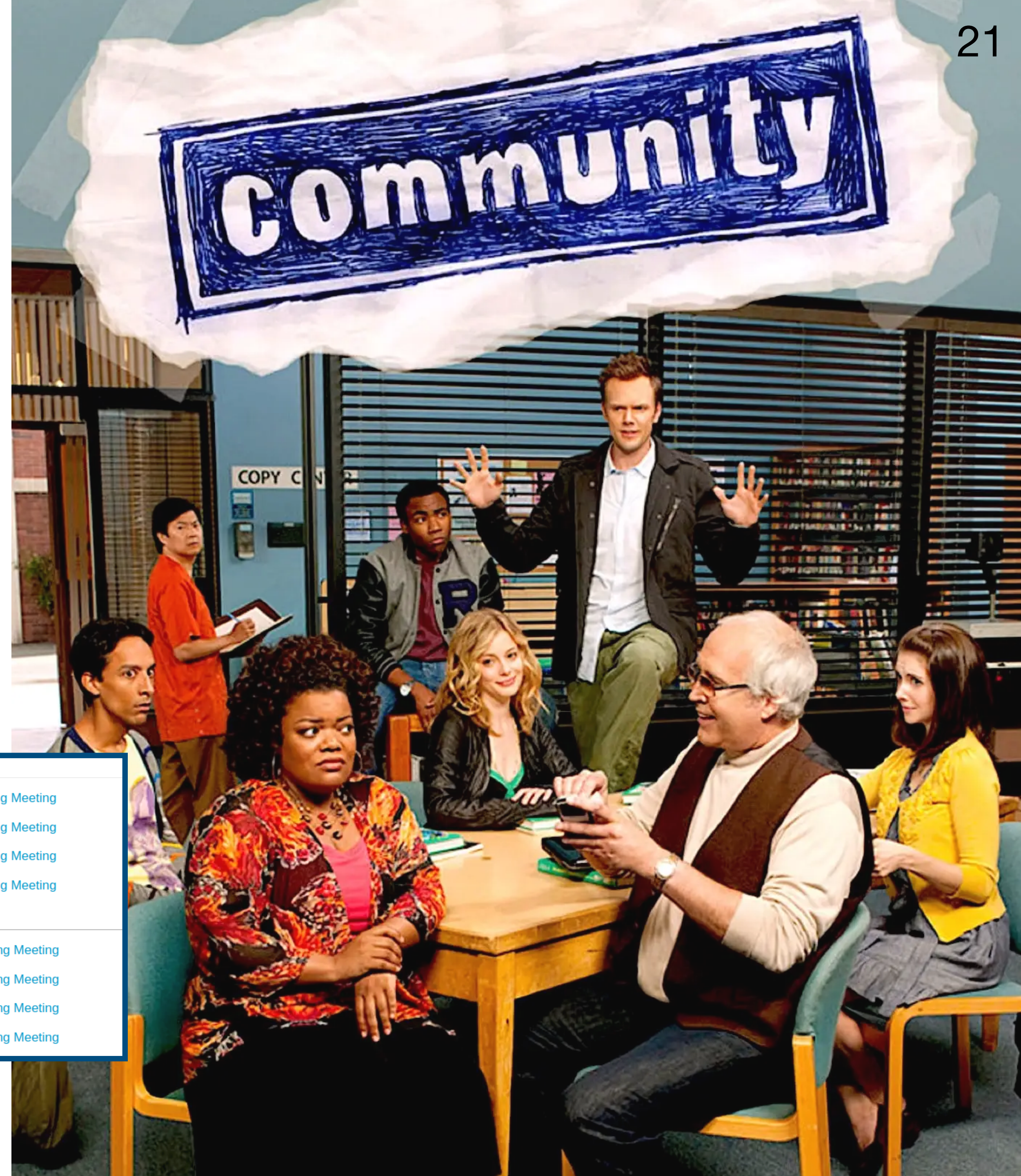
Let's streamline our organization and make sure we don't forget anything!

The image shows a website page for the "Containerization Training Hackathon". It includes a navigation menu with items like "Overview", "Timetable", "Registration", "Participant List", "Videoconference", "Code of Conduct", and "Group Photo". The main content area features the HSF and iris hep logos, the title "Containerization Training Hackathon", and a section titled "The big goal!" which describes the purpose of the training. A contact list is provided on the left side.

June 2024	
24 Jun	Training WG Planning Meeting
17 Jun	Training WG Planning Meeting
10 Jun	Training WG Planning Meeting
03 Jun	Training WG Planning Meeting
May 2024	
27 May	Training WG Planning Meeting
20 May	Training WG Planning Meeting
13 May	Training WG Planning Meeting
06 May	Training WG Planning Meeting

Hackathons

Regular meetings

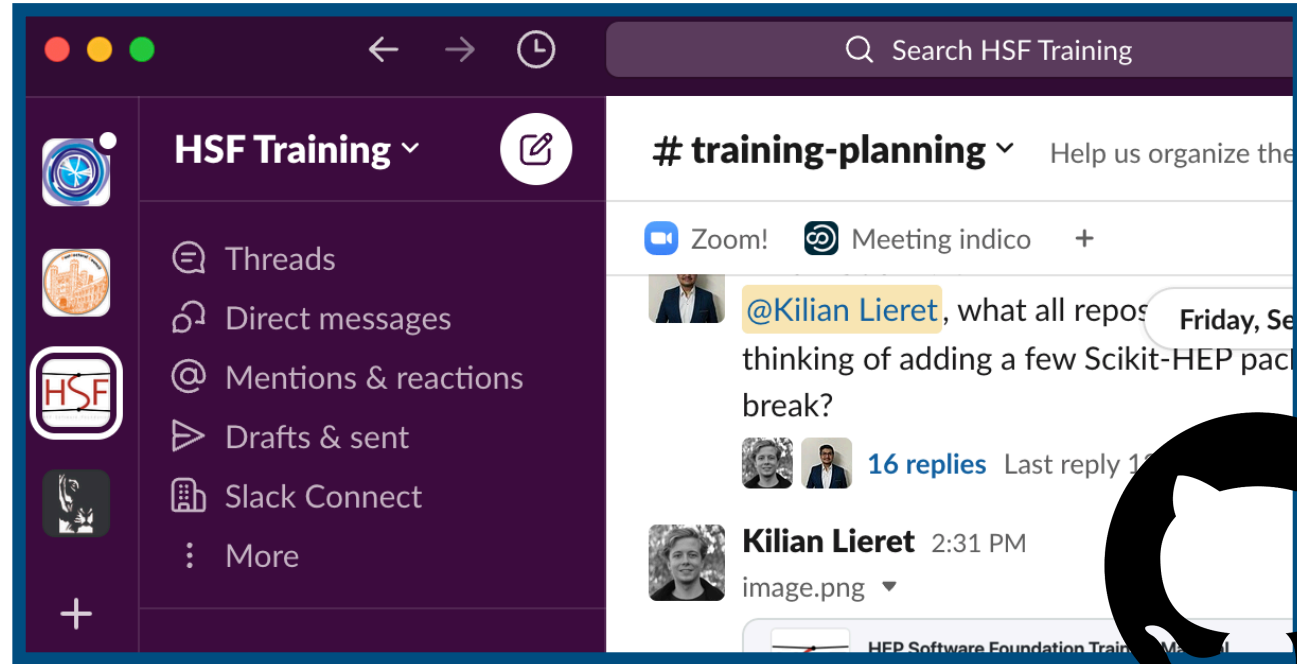


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Communication



Guidance



HSF Training Hackathon Checklist

Let's streamline our organization and make sure we don't forget anything!

HSF Training Workshop Checklist

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Containerization Training Hackathon

The big goal!

Training in software and computing is an essential ingredient for the success of any HEP experiment. As most experiments have similar basic prerequisites we want to join our efforts and create one introductory software training curriculum that serves HEP newcomers from all experiments. This curriculum is made up of independent training modules and should contain all software skills needed as they enter the field while instilling best practices for writing sustainable software.

We have started this work here and have completed and tested several of our modules to great success.

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Hackathons

Regular meetings



Our community

Amber Roepe (she/her), Andrea Valassi, Clemens Lange, Dan Guest, Daniel S. Katz, David Chamont, David Yakobovitch, Gordon Stark, Graeme A Stewart, Henry Schreiner, Jackson Burzynski, Jim Pivarski, Meirin Oan Evans, amorenobr, Guillermo A. Fidalgo-Rodríguez, Marchela04, ekauffma, Wouter Deconinck, Michel H. Villanueva

Authors

Thanks goes to these wonderful people (emoji key) who contributed to the content of the

Recognition



What is this workshop about?





CONNECT

ACT

SHARE

Sat 19/10		Sun 20/10	All days
Print PDF Full screen Detailed view Filter			
13:00	Registration and light lunch		13:00 - 14:00
14:00	HSF - Intro	Valeriia Lukashenko	14:00 - 14:30
	LPC HATS	Gabriele Benelli	14:30 - 15:00
15:00	ErUM-Data-Hub	Angela Warkentin	15:00 - 15:30
	ATLAS	Jason Veatch	15:30 - 16:00
16:00	Coffee		16:00 - 16:30
	LHCb Starter Kit	Miguel Fernandez Gomez	16:30 - 17:00
17:00	DUNE	Heidi Marie Schellman	17:00 - 17:20
	Analysis of HSF-Training event data	Jim Pivarski	17:20 - 17:40
18:00	Working Session		17:40 - 18:40



TODAY

Sat 19/10		Sun 20/10	All days
<div style="text-align: right;"> Print PDF Full screen Detailed view Filter </div>			
13:00	Registration and light lunch		13:00 - 14:00
14:00	HSF - Intro	<i>Valeriia Lukashenko</i>	14:00 - 14:30
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	Analysis of HSF-Training event data	<i>Jim Pivarski</i>	17:20 - 17:40
18:00	Working Session		17:40 - 18:40

TODAY

Working session : An open discussion on common training-related issues.

HSF Training Pre-CHEP Workshop

Oct 19–20, 2024
Europe/Warsaw timezone

Overview

The HSF Training Working Group are delighted to organise a workshop on Training in HEP in advance of the main [CHEP2024 conference](#) in Krakow.

Venue

Training for software and computing is critical in high-energy physics and this workshop is open to everyone.

Zoom Room

Live Notes

The workshop will take place over two half days, Saturday PM and Sunday AM.

Timetable

Registration and payments will be handled via the main CHEP conference website - be sure to click the pre-CHEP workshop option and organise your travel accordingly!

Contribution List

Call for Abstracts

More details about the event will follow shortly.

Workshop Organisers

- [✉ valeriia.lukashenko@cer...](mailto:valeriia.lukashenko@cer...)
- [✉ pivarski@princeton.edu](mailto:pivarski@princeton.edu)
- [✉ alexander.moreno@uan...](mailto:alexander.moreno@uan...)

Starts Oct 19, 2024, 12:00 p.m.
Ends Oct 20, 2024, 5:00 p.m.
Europe/Warsaw

AGH Krakow University, Krakow, Mickiewiczza Av. 30,
Room no 31
[Go to map](#)

Alexander Moreno Briceño
Jim Pivarski
Valeriia Lukashenko

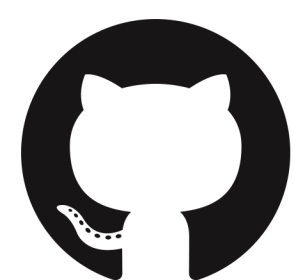
[🔗](#) Live Notes

Live Notes

Sat 19/10	Sun 20/10	All days
<p>Print PDF Full screen Detailed view Filter</p>		
09:00	CoDaS-HEP and US-CMS/US-ATLAS Training <i>Jim Pivarski</i>	09:00 - 09:30
	EVERSE (EIROforum-JENA-ICFA) <i>Stefan Roiser</i>	09:30 - 10:15
10:00	Coffee	10:15 - 10:45
	HSF-India <i>David Lange</i>	10:45 - 11:15
11:00	EIC <i>Sakib Rahman</i>	11:15 - 11:45
	ICFA Data Lifecycle Panel - what can it do for you? <i>Kati Lassila-Perini</i>	11:45 - 12:15
12:00	Working Session	12:15 - 13:15
13:00	Light lunch	13:15 - 14:15
14:00		

TOMORROW

Keep in touch



[@hsf-training](https://github.com/hsf-training)



hepsoftwarefoundation.org



slack

hsftraining.slack.com



Public meetings
Monday 16:00 CET

indico.cern.ch/category/10294/