



# Getting started on SubMIT: Available Resources

Zhangqier Wang  
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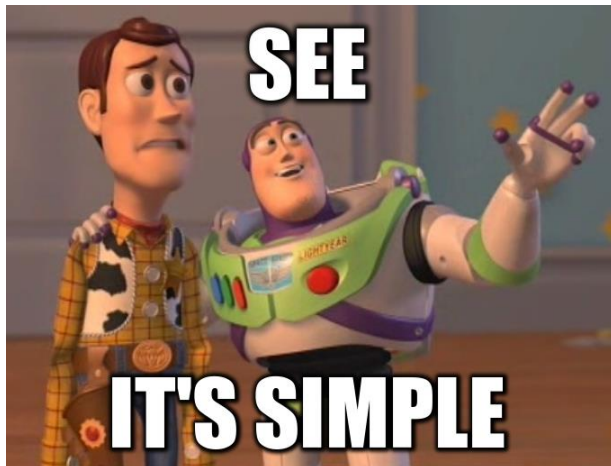
# Outline



- Computing resources
  - What you can get from SubMIT
- Get start with SubMIT
  - Account creation
  - Documentations for using SubMIT
- User Support
  - AI chatbot: A2rchi
  - Help Desk



- SubMIT is a login pool + scale-out to batch resources
- It helps with the physics research
  - Storage and local system for preparing and testing research
  - provide large computing resources
- How to use SubMIT?
  - Login to SubMIT
  - Submit batch jobs to utilize all the computing resources
  - Filesystem + fast link/disk speed up your file accessing

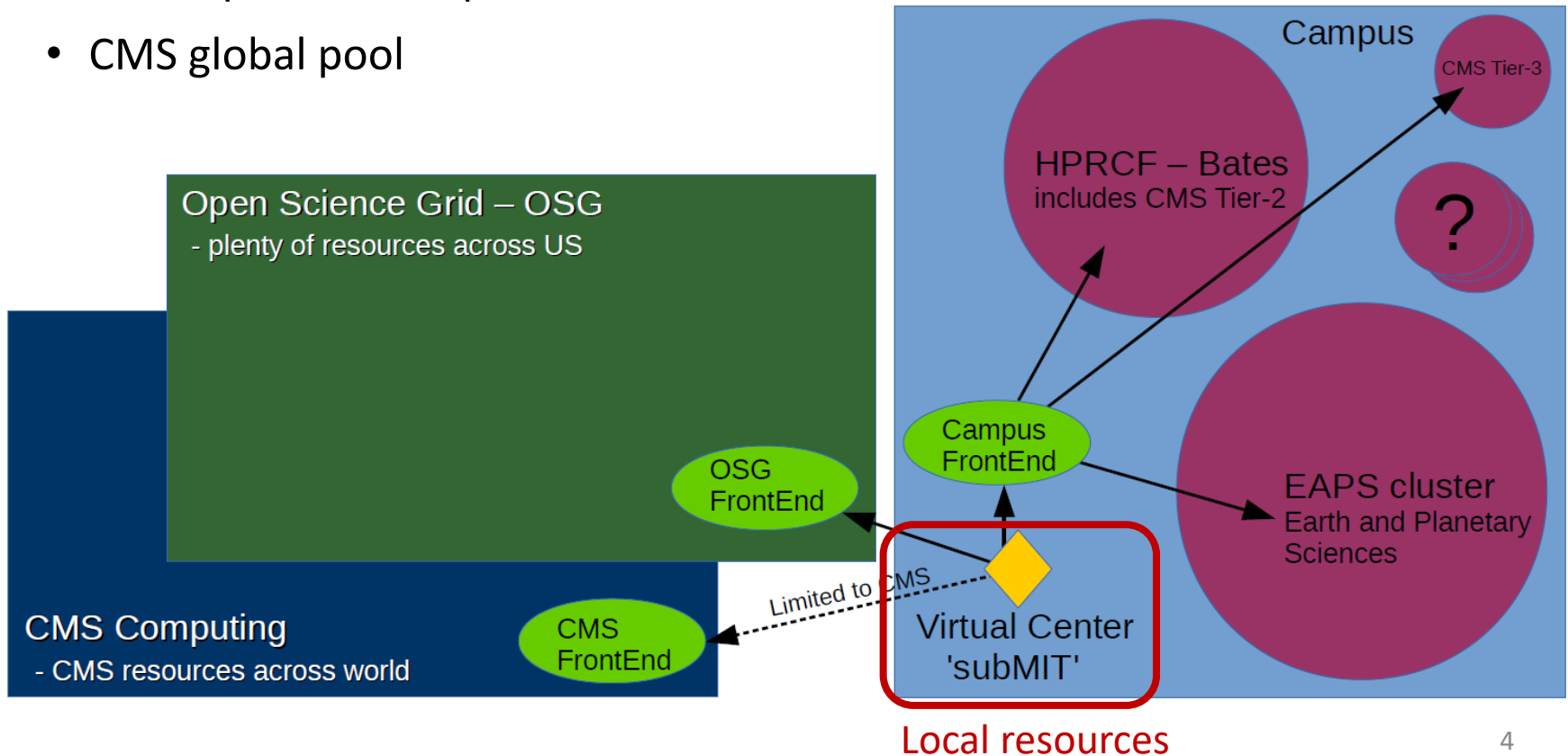


1. What you can get
2. How to get it
3. How to get help if you have problems



# Computing Resources

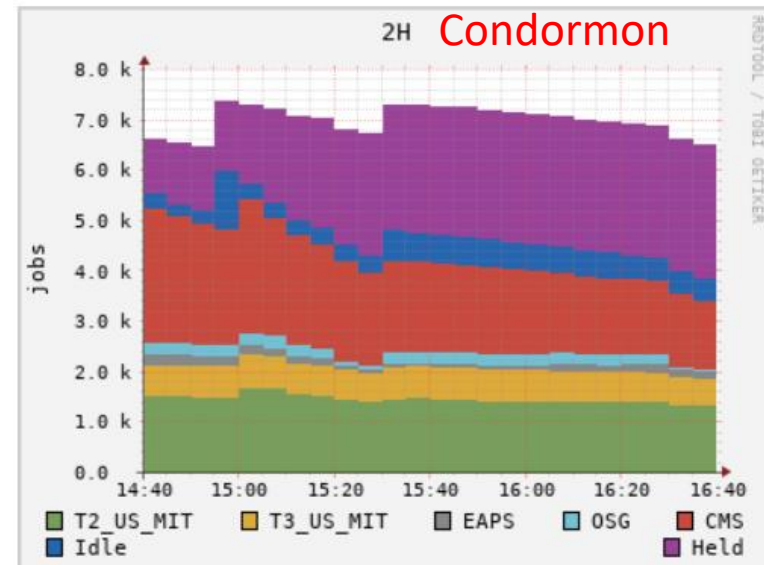
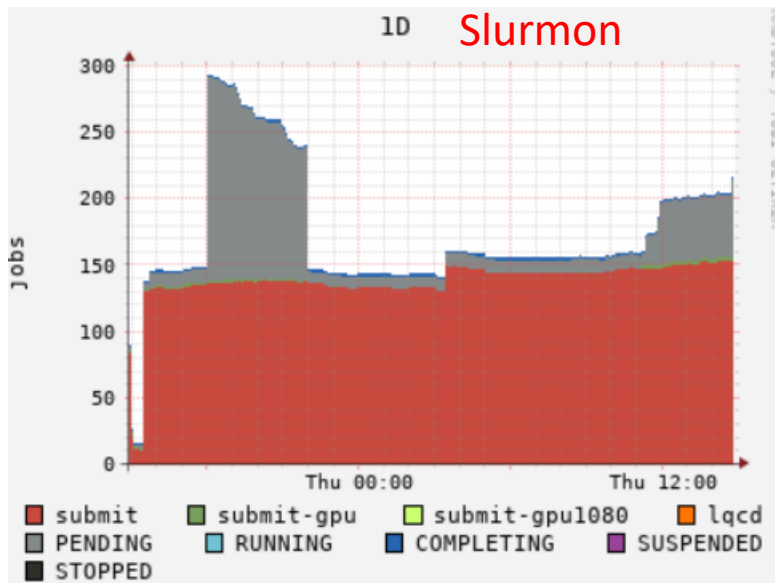
- The SubMIT connects to different external resources
- Campus FrontEnd: GlideinWMS
  - Tier2, Tier3, EAPS Clusters
- OSG: open science pool
- CMS global pool



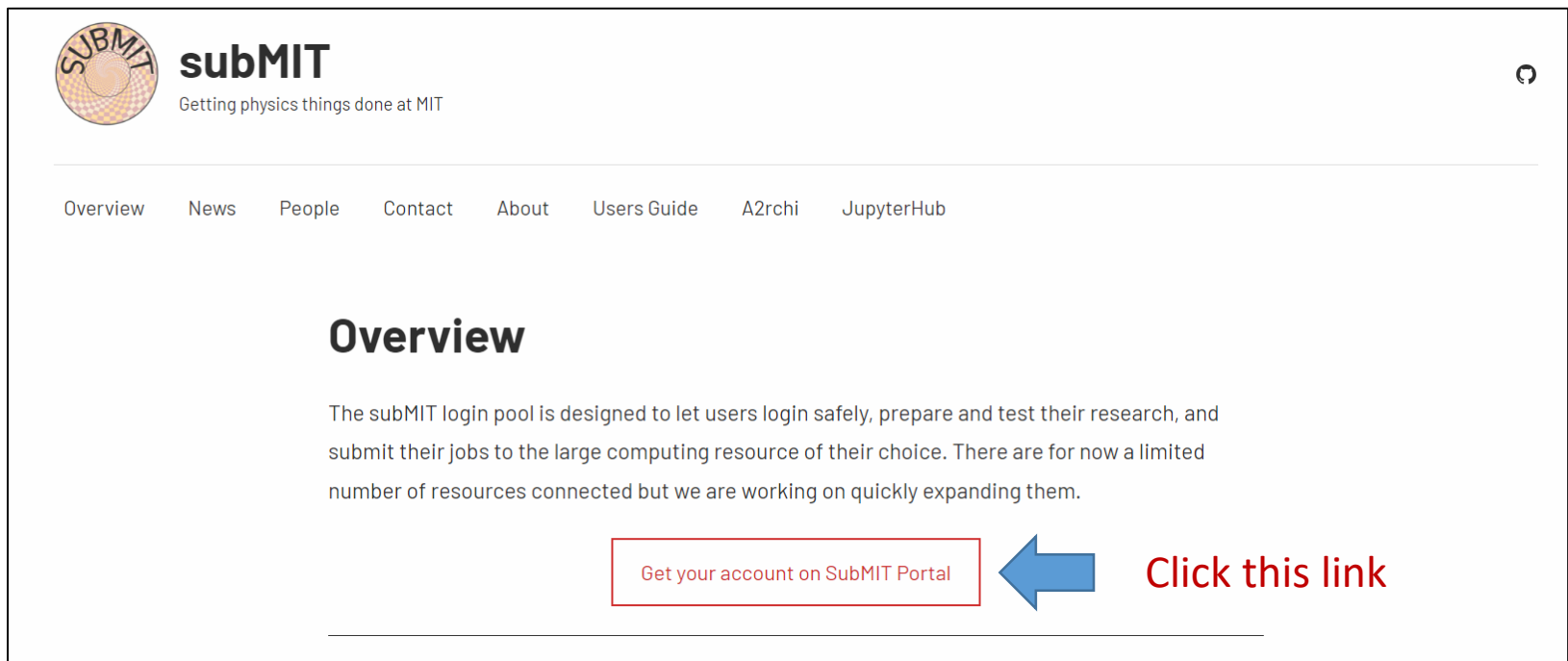


# Batch Jobs

- Local resources via “slurm”
  - 1000+ cores, 50+ GPUs
- External resources: access via “htcondor”
  - Campus: T3 (1000 cores), T2 (>10000 cores) , EAPS
  - OSG pool: dozens of campus, national labs, and non-profit organizations
  - CMS global pool: CMS sites worldwide
- Could reach 10k+ jobs running at once



- First, to get on submit, you need your own account
  - Creation is straight forward
    - You are in the candidate list – If not, send email to help-desk (slide 9)
    - Go to our website: [submit.mit.edu](https://submit.mit.edu)



The screenshot shows the subMIT website interface. At the top left is the subMIT logo, a circular icon with the word "SUBMIT" inside. To its right is the text "subMIT" and the tagline "Getting physics things done at MIT". Below this is a navigation menu with links: Overview, News, People, Contact, About, Users Guide, A2rchi, and JupyterHub. The main content area is titled "Overview" and contains a paragraph: "The subMIT login pool is designed to let users login safely, prepare and test their research, and submit their jobs to the large computing resource of their choice. There are for now a limited number of resources connected but we are working on quickly expanding them." At the bottom of the page, there is a red-bordered button that says "Get your account on SubMIT Portal". A blue arrow points from the right towards this button, and the text "Click this link" is written in red next to the arrow.



# Account Creation



- Once you are in the candidate list, in the submit portal, you will see your account information. Account info is based on **MIT Athena** (MIT account)

Submit Portal Account Status **SSH Keys** Password User Guide

## SSH Keys

Keys (Paste public keys here)

Generate you own ssh key and paste it here

- Example command: ssh-keygen
- Copy ~/.ssh/id\_rsa.pub content here

Update Keys

- Login to SubMIT: ssh <USERNAME>@submit.mit.edu
  - There are several other ways, details in the later talks



- Contents of the User's Guide:
  - Main section designed to help users with getting started.
  - Describes resources (storage, software, batch systems, etc) available
  - Simple commands/scripts to help start work

- Tutorial
  - Step by step tutorial, helping you get familiar the functionality fast
  - A few examples of workflows
  - More examples on github:  
<https://github.com/mit-submit/submit-examples>

The screenshot shows the subMIT website interface. At the top left is the subMIT logo with the tagline "Getting physics things done at MIT". A navigation menu includes "Overview", "News", "People", "Contact", "About", "Users Guide" (highlighted with a red box), "A2rchi", and "JupyterHub". Below the navigation is a dark grey header for "User's Guide - subMIT". Underneath, there are two sections: "Contents:" and "Tutorials:". The "Contents:" section lists various topics like "User's guide - subMIT login pool", "Getting started", "Best practices", "Available software", "Batch computing", "User quota and storage at submit", "Monitoring at submit", "GPU resources", "Data backup", and "Acknowledging subMIT". The "Tutorials:" section lists "Tutorial 0: Introduction to the UNIX terminal", "Tutorial 1: Native System (python, Julia, matlab)", "Tutorial 2: Batch Job (HTCondor and Slurm)", "Tutorial 3: Containers (Docker and Singularity)", "Tutorial 4: Source Control (Git/Github) with Visual Studio Code (VSCoDe)", and "Tutorial 5: Debugging Fortran code with Visual Studio Code (VSCoDe)". Red arrows point from the text boxes on the left to the corresponding sections in the screenshot.





# User Support



- If you encounter any problems, or features you want to use, please let us know.
- Your good experience is valuable to us
- AI member: A2rchi
  - open source, end-to-end generative AI framework, specialized for helping out in research and education
  - Ask him question, he knows about all the user guide contents
- Help Desk – Submit members will help you
  - Email: [submit-help@mit.edu](mailto:submit-help@mit.edu)
  - A2rchi will draft the reply, the project member will adjust the reply if it is



**subMIT**

Getting physics things done at MIT

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A2rchi answers



How do I submit jobs to T3



Enter your question for A2rchi



What you want to know

A2rchi has trained on user guide, a large language mode based on ChatGPT4



# Summary



- Introduce the computing resources accessible on SubMIT
- The documentations for using SubMIT
  - Major website: [submit.mit.edu](https://submit.mit.edu)
  - [User guide](#)
  - [Tutorial example](#)
- The user support: how you can get help from us.
  - Help desk: [submit-help@mit.edu](mailto:submit-help@mit.edu)
  - A2rchi chatbot



The End