



Pre-survey



<https://forms.gle/bDg5nHR38DWfuofj9>





PEARC20 HackHPC Kick-Off

July 27, 2020

If you have not yet joined the Slack Channel, you are missing out!

<https://cloudhcpchack.slack.com/>



Hackathon in High Performance Computing

HackHPC.org

Presenter: Je'aime Powell

Organizers



Alex Nolte - *University of Tartu*
alexander.nolte@ut.ee



Boyd Wilson - *Omnibond*
boyd@omnibond.com



Amy Cannon - *Omnibond*
amycannon@omnibond.com



Je'aime Powell - *TACC*
jpowell@tacc.utexas.edu



Linda Hayden - *ECSU*
haydenl@mindspring.com



Hackathon in High Performance Computing

HackHPC.org

Agenda

- Code of Ethics - Alex Nolte
- Judging Criteria - Alex Nolte
- Schedule (Brella) - Je'aime Powell
- Deliverables - Je'aime Powell
- Communications Channels - Je'aime Powell
- Introduction to Mentors - Je'aime Powell



Ethics and Judging Criteria



Presenter: Alex Nolte



[https://sciencegateways.org/engage/hackathon/
hackathon-code-of-conduct](https://sciencegateways.org/engage/hackathon/hackathon-code-of-conduct)

Everybody is welcome!



Hackathon in High Performance Computing

HackHPC.org

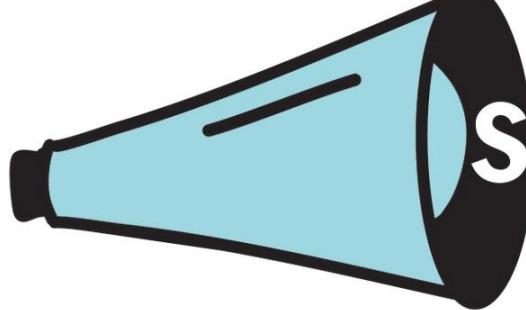


HARASSMENT



Hackathon in High Performance Computing

hackHPC.org

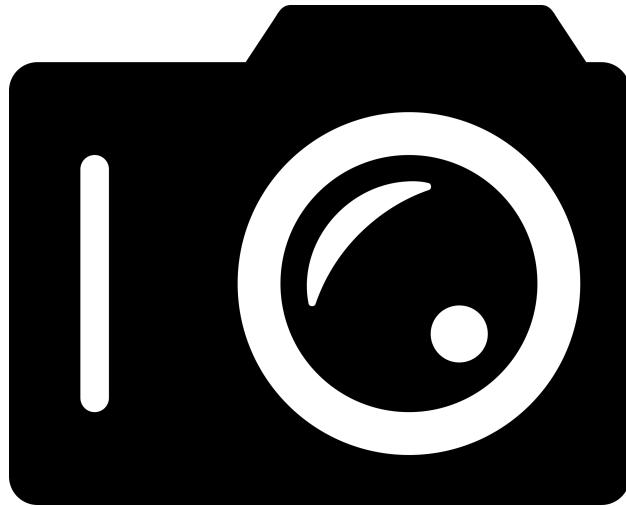


SPEAK UP



Hackathon in High Performance Computing

HackHPC.org



... but not everywhere and at any time!



Hackathon in High Performance Computing

HackHPC.org

Judging criteria



6 criteria with 100 points max. per judge



Viability / Usefulness



Does the project have a realistic chance to get continued / adopted by the gateway for which it was developed? Is it realistic to build it? (20 points)



Creativity of execution / Wow-effect



How creative is the execution of the project? Did the team come up with new use-cases, big opportunities or surprises?
Novelty elements. (20 points)



UX / Polish

A close-up photograph of a person's hand wearing a black glove, holding a blue microfiber cloth and polishing the hood of a dark-colored car. The car's surface is highly reflective, showing bright highlights and deep shadows. The background is blurred, suggesting a workshop or garage environment.

How is the design and user experience of the project? Is it easy to understand and use? Did the team put thought into the user experience? (10 points)



Technical complexity

How technically impressive was the hack? Was the technical problem the team tackled difficult? Did it use a particularly clever technique or did it use many different components? Did the technology involved make you go “Wow”? (20 points)



Collaboration



Did the team achieve everything they wanted? How well did the team collaborate? (20 points)



Presentation

A stylized illustration of a person with dark skin and short hair, wearing a teal blazer over a light blue shirt and dark pants, standing behind a teal podium. They have their arms raised in a gesture of presentation. The background consists of light pink and white geometric shapes.

Did the team present a functioning solution? Did the team stay within the time limit of their presentation? Was the team able to communicate their project and the value it has for the respective gateway? (10 points)



Challenge Completed



Does the solution provided by the team solve the posed challenge? (20 points)



Schedule

Event Site:

<https://jeaimehp.github.io/HackHPC-Pearc20/>



Hackathon in High Performance Computing

HackHPC.org

Day	Time	Activities
Monday (7/27)	1:00p(EST)/12:00p(CT)/10:00a(PT)	Kickoff Meeting <ul style="list-style-type: none"> - Ethics - Schedule - Deliverables Overview - Active Hacking Picture (Individual) [Prize] - Google Project Setup Boyd Wilson
Monday (7/27)	6:00p(EST)/5:00p(CT)/3:00p(PT)	<ul style="list-style-type: none"> - Project Introductions and Goals by the teams [Prize] - Intel Speaker Tom Krueger - Team Virtual Background Challenge [Prize]
Tuesday (7/28)	1:00p(EST)/12:00p(CT)/10:00a(PT)	<ul style="list-style-type: none"> - Status Checkpoint - Lego@HackHPC Picture (Individual) [Prize] - Cloudy Cluster Overview Boyd Wilson
Tuesday (7/28)	6:00p(EST)/5:00p(CT)/3:00p(PT)	<ul style="list-style-type: none"> - Status Checkpoint - TBD [Prize]
Wednesday (7/29)	6:00p(EST)/5:00p(CT)/3:00p(PT)	Final Presentations <ul style="list-style-type: none"> - People's Choice Award Opens
Thursday (7/30)	1:00p(EST)/12:00p(CT)/10:00a(PT)	Awards Ceremony



Connecting to Sessions



All Zoom sessions will have links provided by **Brella.io**

The screenshot shows the PEARC20 conference website. The left sidebar includes links for People, Schedule (highlighted in green), Stream, Speakers, Exhibitors, and More. The main content area displays the conference schedule for Monday and Tuesday. On Monday, there is a "Hackathon Kick-off Meeting" at 12:00 PM and a "Hackathon Check-in" at 05:00 PM. On Tuesday, there is another "Hackathon Check-in" at 12:00 PM. The "Hackathon" tag is applied to all these sessions. A sidebar on the right provides filtering options for Sessions & Meetings, Sessions, Meetings, and Networking availability, along with day filters for Monday through Friday. A "Tags / Tracks" sidebar lists Application Software, Support, and Outcomes; Best Paper; Best Student Paper; ML4AI; Advanced Research Computing Environments; and Workforce development. A red box highlights the "Join Zoom meeting [HERE](#)" link in the "DESCRIPTION" section of the Hackathon Kick-off Meeting page.

12:00 PM - 02:00 PM • 2h 0min • Mon

Hackathon Kick-off Meeting

HACKATHON

SPEAKERS

DESCRIPTION

Join Zoom meeting [HERE](#)

Hackathon Schedule: <https://jeaimehp.github.io/HackHPC-Pearc20/>



Participating Mentors Introductions



- **Boyd Wilson - Omnidbond**
 - Take a gateway of choice and port it to the cloud using CloudyCluster (CC) or
 - JupyterLab Interface for WRF on CC
- **Sudhakar Pamidighantam - IU**
 - Create Workflows and Django plugins for post processing data
- **Joon Yee Chuah - TACC**
 - Repeatable example of how to aggregate data, generate a visualization using Dash or another visualization technology, and publish the data in an automated fashion



- **Je'aime Powell - TACC**
 - GCP-based Science Gateway Base



- **Charlie Dey - TACC**
 - Data interface and plotting for jupyter notebooks



- **Brandi Kuritz - TACC**



- **Christopher I. G. Lanclos - MVSU**



Challenge: Create a visualization pipeline for a public data set

- Data visualizations are 🔥 right now
- Many are derived from public data sets, updated daily
- Some visualizations are made using Plot.ly Dash - a web-facing visualization tool that only requires Python

Scientists need a process to continuously retrieve, process and publish data that is *repeatable* and *resilient*

Mentors:
Joon Yee Chuah and Brandi Kuritz



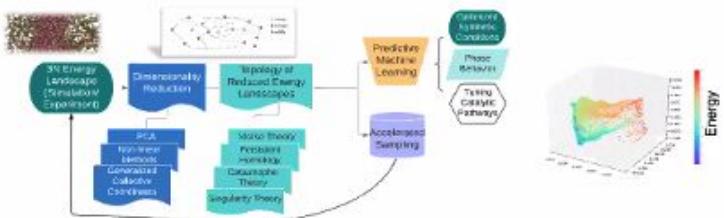
Interactive Visualization and Django Plugin Development for DELTA Project



Data Science + Topology = Chemistry



Mentor:
Sudhakar Pamidighantam



Experiment Summary

Landscape_plot

Landscape.png

Share Clone

Standard-Error

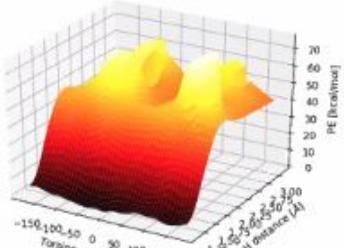
AnalyzeTrajectory.stderr

Standard-Out

AnalyzeTrajectory.stdout

Other Files

Storage Directory



Experiment Summary

Gudhi_Persistent_Barcodes_Plot

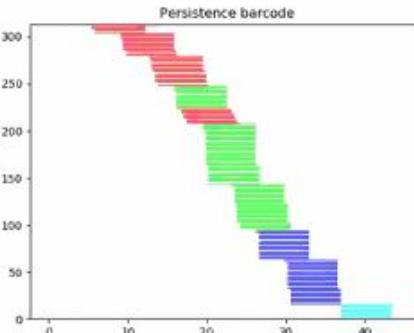
Gudhi_PersistentBarcode.png

Standard-Error

Gudhi_Persistent_Barcodes.stderr

Standard-Out

Gudhi_Persistent_Barcodes.stdout

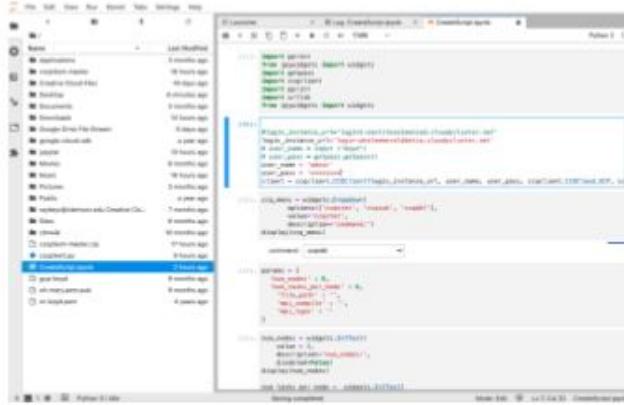


JupyterLab and CloudyCluster on GCP (boyd + others)

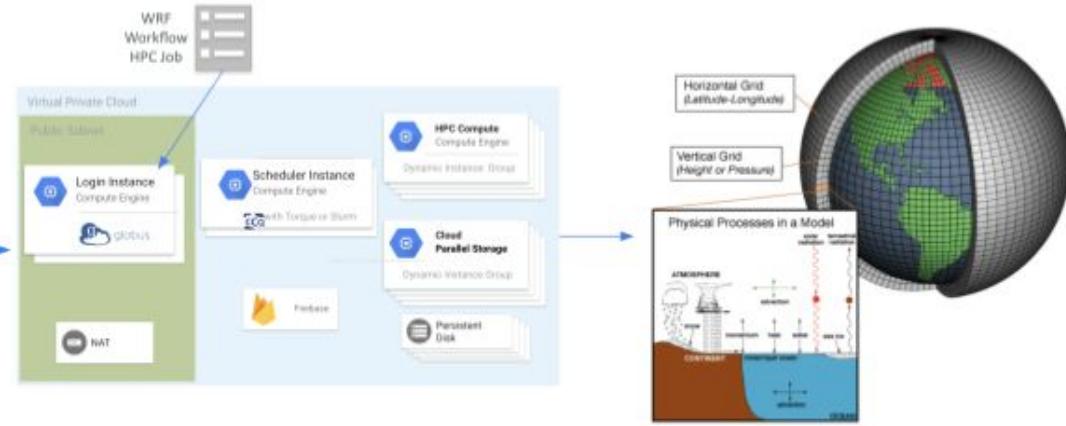
Making a fancy jupyter notebook (jn) to submit general jobs

Or

Make a job that modifies parameters for WRF jobs



A screenshot of the JupyterLab interface. On the left, there's a file browser showing various Jupyter notebooks and other files. In the main area, there are two code cells. The top cell contains Python code for setting environment variables and importing modules. The bottom cell contains more complex code related to WRF job submission. A blue arrow points from this interface to the CloudyCluster architecture diagram.



Or Jn to do other things in parallel if you have a good idea.

We have a basic Jn to start with that interacts with
CloudyCluster job submission and mgt via ccqclient.py .



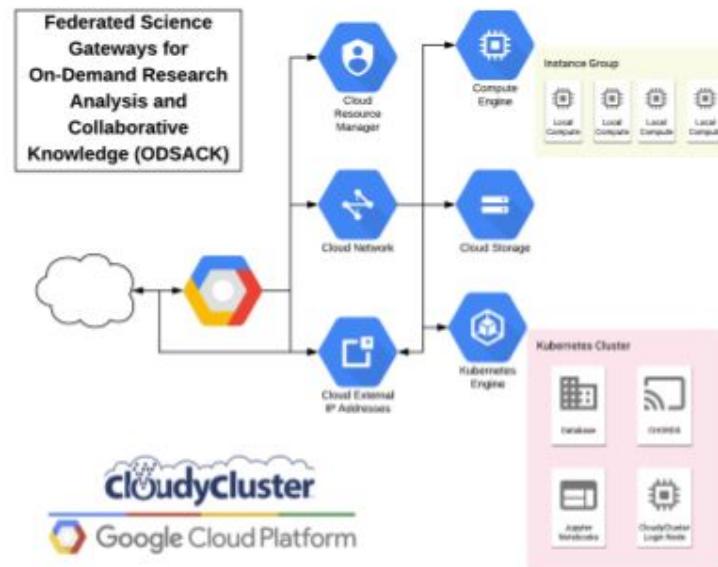
Cloudify Gateways: Federated Science Gateway for On-Demand Research Analysis and Collaborative Knowledge (ODSACK)

Principle Investigator:

Je'aime Powell

Texas Advanced Computing Center

The purpose of the ODSACK project is to test and develop a framework with a base set of software tools and configurations for small-scope research team requirements. The project will target several commonly implemented services including open authentication, collaborative coding with version control, data streaming to a database, visual dashboarding, and code-derived job submission to a computational cluster.



Supporting Specialists

- **Agbeli Ameko (UCAR)**



- **Christopher Lanclos (MVSU)**



- **Mona Wong-Barnum (SDSC)**



Deliverables

Posted to Slack PEARC20-General Channel before Presentations

Due Wednesday 7/29 by 6:00p(EST)/5:00p(CT)/3:00p(PT)

**If not posted 20pt automatic deduction from final judging score.*

Github Repository Link Posted to Slack #PEARC20-General Channel

- Source code
 - Including Comments
- PDF of presentation
 - Team members with pictures
 - Github Link
- README.md project description

Available Resources

- Google Compute Platform Credits
- CloudyCluster Access



Communications Channel



Slack Channel:

<https://cloudhcpchack.slack.com>



Twitter:

@ccloudhack

Website:

<http://hackhpc.org>



Hackathon in High Performance Computing

HackHPC.org

Questions & Concerns

- Code of Ethics: <https://sciencegateways.org/engage/hackathon/hackathon-code-of-conduct>
- Hack HPC Site: <http://hackhpc.org>
- PEARC20 HackHPC Site: <https://jeaimehp.github.io/HackHPC-Pearc20>
- PEARC20 Conference Site: <https://pearc.acm.org/pearc20/>
- PEARC20 Zoom Session Links (Hackathon): <https://www.brella.io>
- SGCI URL: <http://sciencegateways.org/engage/hackathon>



The Hackathon Begins Next Week!

Monday July 27th @
1:00p(EST) / 12:00p(CT) / 10:00a(PT)

For more information join our Slack Channel:

<https://cloudhcpchack.slack.com/>



Hackathon in High Performance Computing

HackHPC.org