

# HPC in the City: Pandemics



## Systems On-Boarding

Pre-Event Training - October 31, 2023

[HTTPS://HACKHPC.GITHUB.IO/HPCINTHECITY23](https://hackhpc.github.io/hpcinthecity23)



# ORGANIZERS



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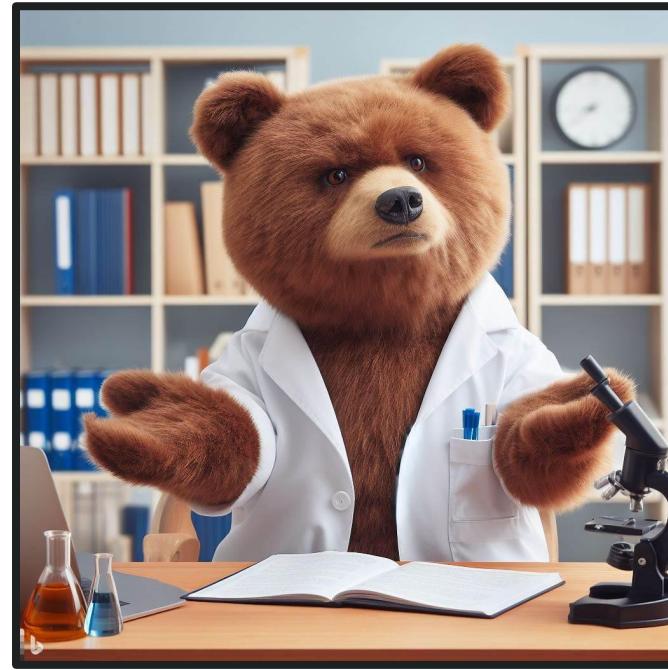
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# AGENDA

- 1. Hackathon Objectives**
- 2. Project Timeline**
- 3. Deliverables and Resources**
- 4. Discord**
- 5. Github**
- 6. Omnibond Project Eureka**
- 7. TACC New User Account Creation**



**Join our Discord Server**  
<https://discord.gg/G2a7JWnQkP>



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# Hackathon Objectives and Student Outcomes

The hackathon aims to harness the resources, skills, and knowledge found in the HPC community in an effort to provide applied exposure towards students from 2-4 year post-secondary educational institutions. In short, the hackathon will provide HPC skills and training while targeting problems that directly affect the participants.

Develop knowledge and create solutions to identified pandemic decision science projects through application of data analysis/presentation or management utilizing HPC/CI resources.

## **Student Outcomes**

- Increased familiarity with data science in the cloud
- Experience collaborative software engineering
- Develop professional communication skills



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# Major and Minor Awards

- Team Introduction
- Project Management
- Team Trailer
- Progress
- Judges Award
  - Criteria
- Viewer's Choice
  - Votes
- Impact Award
  - Community

Criteria :

- Project Impact
- Viability / Usefulness
- The creativity of execution /Wow-effect
- UX / Polish
- Technical complexity
- Collaboration
- Presentation
- Completeness



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# Project Timeline

## Event Simplified Schedule

- **Friday, 11/3/23**
  - Kick-Off
    - Mentor Pitches & Team Formation
- **Saturday, 11/4/23**
  - Morning Checkin - Team Introductions
  - Afternoon Checkin - Team Goals and Project Plan
- **Sunday, 11/5/23**
  - Afternoon Checkin - One-Day Progress
- **Monday, 11/6/23**
  - Afternoon Checkin - Team Status
- **Tuesday, 11/7/23**
  - Morning Checkin - Mentor Trailers
  - **Final Presentations**

~ 96 hrs Total Time  
- ~7 hrs Planning / Checkins  
- ~30 hrs Sleep/Rest  
~59 hrs Work Time



HACKATHON START



FINAL PRESENTATIONS



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# Project Deliverables and Resources

## Deliverables:

- Github Repository
  - README.md with project description
  - Source code Including Comments
  - Presentation
    - Team members with pictures
    - Use of technology in the project
    - Project impact to the community

## Resources:

- Project Eureka
- TACC Frontera / LS6
- Mobility Dataset (TACC)
- Commonly Used:
  - Python
  - R / RStudio
  - Jupyter Notebooks
  - Node.Js (JavaScript)
  - Colab
  - HTML\CSS
- Discord - <https://discord.gg/G2a7JWnQkP>



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# Discord

- Goto to the #select\_role channel and choose your role from the drop down menu
- Event discussion channel is #hpcinthecity-pandemics



Join our Discord Server  
<https://discord.gg/G2a7JWnQkP>

- Text and/or voice communication in teams
  - Mentors will create team channels
- Screen sharing
- File sharing
- Event announcements



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# GitHub

Note: A GitHub repository will be required of all teams when reporting out during final presentations. (Examples: <https://hackhpc.github.io/HPCintheCity22/teams/> )

[HINT] GitHub Pages is a powerful, free feature!

→ *Brief GitHub tutorial on Saturday (11/4) after the morning session*

```
After downloading, simply edit the HTML and CSS files included with dist directory. These are the only files you need to worry about, you can ignore everything else! To preview the changes you make to the code, you can open the index.html file in your web browser.
```

**Advanced Usage**

Clone the source files of the theme and navigate into the theme's root directory. Run `npm install` and then run `npm start`, which will open up a preview of the template in your default browser; watch for changes to core template files, and live reload the browser when changes are saved. You can view the `package.json` file to see which scripts are included.

**npm Scripts**

- `npm run build`: builds the project - this builds assets, HTML, JS, and CSS into `dist`.
- `npm run buildAssets`: copies the files in the `src/assets` directory into `dist`.
- `npm run buildSass`: compiles the SCSS located in the `src/sass` directory into `dist`.
- `npm run buildScripts`: brings the `src/scripts` file into `dist`.
- `npm run buildCSS`: compiles the SCSS files located in the `src/css` directory into `dist`.
- `npm run clean`: deletes the `dist` directory to prepare for rebuilding the project.
- `npm run start`: runs the project in dev mode.

HEAD According to Georgia Department of Public Health and the Georgia Center for Cancer Statistics, breast cancer is the leading cause of cancer incidence in women citizens residing in Georgia. Breast cancer accounts for 30% of all new cancers found in women. Through prediction modelling, women can understand how risk factors play a part in prevention. Knowing these risks brings awareness and awareness brings about prevention.

We created a website with prediction graphs showing the possible cases of breast cancer for 2020, and compared it to prior years. This site was created to spread awareness for breast cancer in Atlanta.

You can see what work was done on Google Colab <https://colab.research.google.com/drive/1N89pY4MSITOUQUvqSta7wQtUzV-Itusp-sharing>

This project was created by Demetrius Nicholson, Rayna Wynn, Elijah Higgs, Javier Guillen, and Tony Guy.

Data for this study was obtained from the BCSC: <http://bcsc-research.org/>.

**Start Bootstrap - Grayscale**

Grayscale is a multipurpose, one page HTML theme for Bootstrap created by Start Bootstrap.

**Preview**



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# Omnibond's Project Eureka

The screenshot shows the Data Science Platform interface with a sidebar containing icons for Home, Apps, Export Jamboard, Zoom Meetings, TDIS, TACC, XLPR-Helios, and Classical Music. The main area is titled 'Demo' and lists six launchers:

- Jupyter 4.0.0 (2 Cores, 4 RAM, 0 GPU)
- Desktop (2 Cores, 4 RAM, 0 GPU)
- VS Code 4.12.0 (2 Cores, 4 RAM, 0 GPU)
- RStudio 2023.03.0 (2 Cores, 4 RAM, 0 GPU)
- Spyder 5.4.3 (2 Cores, 4 RAM, 0 GPU)
- Spyder 5.4.3 - GPU (8 Cores, 61 RAM, 1 GPU)

Each launcher has a 'Launch' button and a star icon.

- On-Demand Virtual Machines
- Pre-configured Data Science images
- Provided for each team
  - Access created based on your registration information
- Brief tutorial during the Kick-Off



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## TACC New User Account Creation

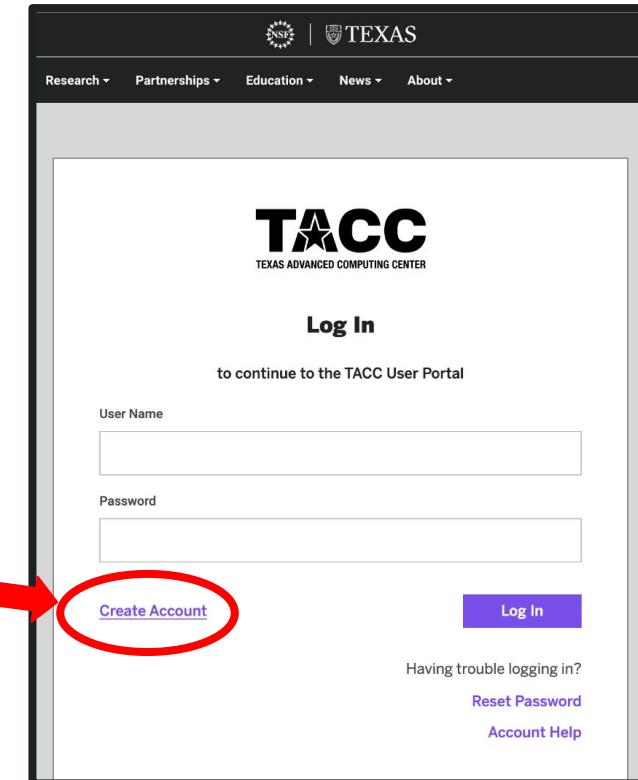
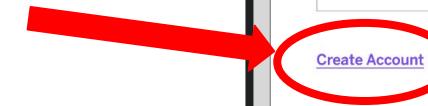
1. <https://tacc.utexas.edu>
2. Click "Login" in the upper right corner
3. Select "Create Account"
4. Create a MFA token
5. Provide your TACC user account via this form:



<https://forms.gle/pCu9K9X5cC6seJpc8>

\* Use your school or organization email address. **DO NOT USE A GMAIL, YAHOO, or HOTMAIL email address**

\*\* If you do not have US citizenship please inform me via email: [jpowell@tacc.utexas.edu](mailto:jpowell@tacc.utexas.edu)



The screenshot shows the TACC Log In page. At the top, there are links for Research, Partnerships, Education, News, and About. The TACC logo and the text "TEXAS ADVANCED COMPUTING CENTER" are displayed. Below that is a "Log In" section with fields for "User Name" and "Password". To the right of these fields is a purple "Log In" button. At the bottom left, there is a link "Create Account" which is circled in red. Below the "Create Account" link, there are links for "Having trouble logging in?", "Reset Password", and "Account Help".



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# Dataset Information

Mobility Dataset location: `/work2/projects/utprojections/safegraph_data`

Project: TACC-TRAIN

Sub directories:

- FULL\_MOBILITY\_DATA
- OPEN\_CENSUS\_DATA



## SAFE GRAPH

Accessing the data using: <https://tap.tacc.utexas.edu>



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# Starting a Session using TAP

Site: <https://tap.tacc.utexas.edu>

Job:

- System:
  - Frontera
- Application:
  - Jupyter Notebooks
- Project:
  - TRA23003
- Queue:
  - Development
- Job Name:
  - <up\_to\_you>
- Time Limit:
  - 30 Minutes (Default 2hrs)
  - 00:30:00

The screenshot shows the TACC Analysis Portal (TAP) interface. On the left, the 'Submit New Job' form is displayed with fields for System, Application, Project, Queue, Nodes, Tasks, Options (Job Name, Time Limit, Reservation, VNC Desktop Resolution), and Utilities. On the right, the 'System Status' and 'Past Jobs' sections are shown.

**System Status**

System	Status	Utilization	Job Count
Frontera	Open	92%	Running: 366 Waiting: 130
Lonestar6	Open	95%	Running: 249 Waiting: 293
Stampede2	Open	95%	Running: 176 Waiting: 130

**Past Jobs**

Job Name	Date	Details
hpcinthecity-test	11/01/2023	<a href="#">Details</a>
tap-test	11/01/2023	<a href="#">Details</a>

**Submit New Job Form Fields:**

- System: Select System
- Application: Select System
- Project: Select System
- Queue: Select System
- Nodes: 1
- Tasks: 1
- Options:
  - Job Name: 20 characters max
  - Time Limit: H:M:S (default 2:0:0)
  - Reservation: reservation name
  - VNC Desktop Resolution: WIDTHxHEIGHT
- Utilities: Resubmit (blue button)



# Using a TAP session to access CDPS Dataset

Mobility Dataset location:

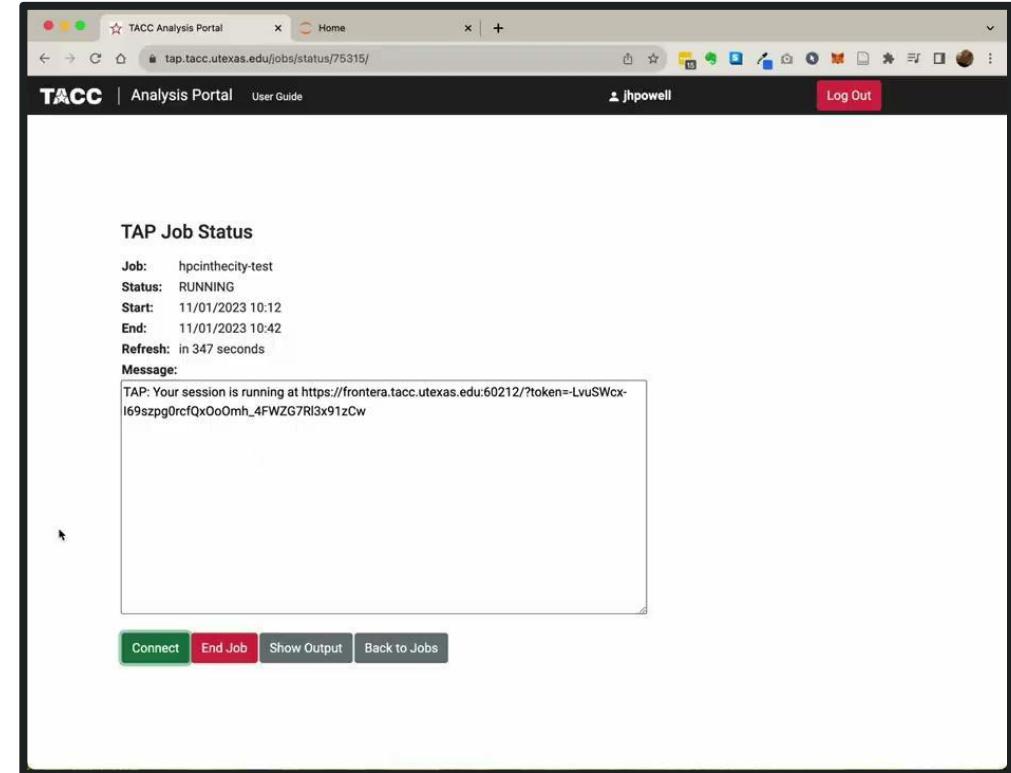
**/work2/projects/utprojections/safegraph\_data**

Project: TACC-TRAIN

Sub directories:

- FULL\_MOBILITY\_DATA
- OPEN\_CENSUS\_DATA

Accessing the data using: <https://tap.tacc.utexas.edu>



The screenshot shows a web browser window for the TACC Analysis Portal. The URL in the address bar is `tap.tacc.utexas.edu/jobs/status/75315/`. The page header includes the TACC logo, a user profile for "jhpowell", and a "Log Out" button. The main content area is titled "TAP Job Status" and displays the following information for a job named "hpcinthecity-test":

Job:	hpcinthecity-test
Status:	RUNNING
Start:	11/01/2023 10:12
End:	11/01/2023 10:42
Refresh:	in 347 seconds
Message:	TAP: Your session is running at <a href="https://frontera.tacc.utexas.edu:60212/?token=LvuSWcx-l69szpg0rcfQxOoOmh_4FWZG7Rl3x91zCw">https://frontera.tacc.utexas.edu:60212/?token=LvuSWcx-l69szpg0rcfQxOoOmh_4FWZG7Rl3x91zCw</a>

At the bottom of the page are four buttons: "Connect" (green), "End Job" (red), "Show Output" (grey), and "Back to Jobs" (grey).



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# TACC Analysis Portal (TAP) and Core Experience Portal (CEP)

Sites: <https://tap.tacc.utexas.edu> and <https://cep.tacc.utexas.edu>



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# QUESTIONS ??

## Next Session:

- **Kick-Off**  
[Friday, 11/3/23 @ 5pm CDT]

## Schedule:

<https://hackhpc.github.io/hpcinthecity23/schedule.html>

## Presenter Contact Information:

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Charlie Dey (TACC) - [charlie@tacc.utexas.edu](mailto:charlie@tacc.utexas.edu)

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**VOLTRON DATA**