

Team Members



Jack Hurst

- Computer Science
- Devices
- Information Internetworks



Tracey Li

- Computer Science
- Information Internetworks
- Theory



Braden Hester

- Computer Science
- Systems & Architecture
- Theory



Patrick Sliwinski

- Computer Science
- Devices
- Systems & Architecture



Samuel Henderson

- Computer Science
- Systems & Architecture
- Intelligence



Aditya Kaushik

- Computer Science
- Systems & Architecture
- Theory

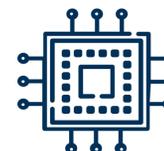
About The Team

- Our team is predominantly comprised of individuals who have never competed in a SC competition before, with one member having previously competed in ISC22.
- Every member takes a specialized course called a Vertically Integrated Project (VIP), which is designed to introduce students to High Performance Computing principles and prepare students for competing in cluster competitions.
- We have a team of world-renowned faculty members supporting us, comprising of Dr. Richard Vuduc, Dr. Aaron Jezghani, Dr. Jeff Young, and Will Powell.
- With each member coming from different backgrounds, our members combined create a team that is greater than the sum of its parts.



Software Configuration

- We plan to load our allocated nodes with CentOS 8-based Singularity containers as this is the OS loaded on the clusters we have access to through Georgia Tech
- Our team plans to use the GCC toolchain (e.g., GCC, OpenMPI, OpenBLAS, etc.)
- SLURM is our choice for a scheduler also chosen for familiarity as this is the scheduler running on our PACE cluster



Strategies and Learning Goals

- Throughout this competition, our team hopes to gain further knowledge and familiarity in HPC tasks like building; modifying, tuning, and debugging; and running applications of many varieties
- We plan to practice building and deploying applications on different clusters available at Georgia Tech using different node types, compiler and runtime flags, and run parameters for a few reasons:
 - To practice the process from beginning to end
 - To learn under what conditions the applications and benchmarks run most efficiently
 - To gain exposure to environments different from just the cloud resource/interface provided by Chameleon Cloud
- Our team will also look into some checkpointing/resuming tools so that if we have to worry about dynamic power draw limits, we have the ability to suspend some running applications without losing the intermediate results.

Skills and Preparation

- Through the VIP course we have learned about about HPC fundamentals, linux basics, benchmarking, and job scheduling
- Many of our members have taken operating systems and processor design classes. We will utilize the knowledge from those courses to improve our environment setup and better optimize applications
- We practiced running applications and benchmarks on the Advanced Computing Environment (PACE) at Georgia Tech
- Each member gained familiarity with Chameleon Cloud, but we plan to distribute responsibility amongst our team so that we can have experts on each application and other aspects of the competition
- Our team has surveyed and discussed previous competition's applications to prepare for the mystery application
- Strong collaboration will be achieved through weekly work sessions and a Discord server, along with an internal calendar to track progress and deadlines



Team and Diversity

- We recognize the importance of diversity and each of us meaningfully contributes to our communities to address issues of inequality based on race, ethnicity, gender, and disability.
- Patrick was born missing both hands as a result of radial deficiency. He values computer science as a powerful means of improving accessibility. He hopes to see HPC's influence on personalized healthcare and medicine grow in order to better support a wide range of health conditions and disabilities.
- Both our team and Georgia Tech as a whole acknowledge that women are underrepresented in HPC. One of our members, Tracey, is a woman, and all of our team members are committed to welcoming people from diverse communities.
- Samuel, Aditya, and Sahit are all Eagle Scouts and have dedicated significant amounts of time volunteering in their communities.