Welcome to the ACCESS MPI Workshop

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Parallel Computing Scientist
Pittsburgh Supercomputing Center
Who are we?

Your hosts:
Pittsburgh Supercomputing Center

part of

ACCESS
Advancing Innovation
Who am I?

John Urbanic

Distinguished Service Professor
Carnegie Mellon University

Undergrad Advanced Computational Physics
Graduate Large Scale Computing
Data Science Capstone Projects

Parallel Computing Scientist
Pittsburgh Supercomputing Center

Code, code, code, on
Parallel platforms: MPI, OpenMP, OpenACC, ...
Big Data platforms: Spark, ...
Machine Learning: Spark, TensorFlow, PyTorch, ...
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HPC Monthly Workshop Philosophy

- Workshops as long as they *should* be.
- You have real lives…
  - in different time zones…
  - that don’t come to a halt.
- Learning is a social process
  - This is not a MOOC
  - This is the *Wide Area Classroom*, so stay engaged!
**Biggest Potential For Disappointment**

- We absolutely, definitely, without question, wish we had more hands-on exercise time.

- This is by design and demand. The topics we cover are all greatly requested and attempts to delete any of them provoke outrage in our surveys. This demand has compressed our hands-on sessions.

- One solution is for you to use the remainder of our short days to do further work.

- We also assume you will use your extended access to do exercises. Usually this is just a bonus.

- Use your time wisely, and ask questions relentlessly.
Agenda

Thursday, October 19th
11:00 Welcome
11:15 Computing Environment
12:00 Intro To Parallel Computing
1:00 Lunch Break
2:00 Introduction To MPI
3:30 Intro Exercises
4:10 Intro Exercises Review
4:30 Scalable Programming: Laplace Exercise
5:00 Adjourn / Laplace Exercises

Friday, October 20th
11:00 Advanced MPI
1:00 Lunch break
2:00 Laplace Review
2:30 Outro To Parallel Computing
3:15 Parallel Debugging and Profiling Tools
3:30 Exercises
4:30 Adjourn
Copying code from PDFs is very error prone. Subtle things like substituting “-“ for “-“ are maddening. I have provided online copies of the codes in a directory that we shall shortly visit. I strongly suggest you copy from there if you are in a cut/paste mood.

The YouTube Channel Has Arrived!

Due to overwhelming demand, and a lot of editing, we have begun to post workshop videos on the XSEDE Monthly Workshop Training Channel:

XSEDETraining

They will be incrementally appearing in the coming months. Subscribe and give us feedback.