

# 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*



# 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 19<sup>th</sup>

- 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 20<sup>th</sup>

- 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

# Resources

Our TAs

Questions from the audience

On-line talks

[bit.ly/XSEDEWorkshop](http://bit.ly/XSEDEWorkshop)

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.