

# Welcome to the XSEDE OpenACC Workshop

John Urbanic  
Parallel Computing Scientist  
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# Who are we?

*Your hosts:*

Pittsburgh Supercomputing Center

*Our satellite sites:*

Tufts University

Purdue University

Howard University

Iowa State University

University of Cincinnati

University of Delaware

Texas Tech University

Lewis and Clark College

George Mason University

Carnegie Mellon University

Georgia Institute of Technology

Pennsylvania State University

Ohio Supercomputer Center

University of Houston - Clear Lake

Lawrence Berkeley National Laboratory

University of Puerto Rico at Mayaguez

National Institute of Standards and Technology

National Center for Supercomputing Applications

University of Tennessee, Knoxville - National Institute for Computational Sciences

## XSEDE

Extreme Science and Engineering  
Discovery Environment

# Who am I?

John Urbanic  
Parallel Computing Scientist  
Pittsburgh Supercomputing Center

Parallelize codes with

- MPI
- OpenMP
- OpenACC
- Hybrid
- Big Data & Machine Learning

Mostly for XSEDE platforms. Mostly to extreme scalability.

# XSEDE HPC Monthly Workshop Schedule

- October 2-3 *HPC Monthly Workshop: MPI*
- November 6 *HPC Monthly Workshop: OpenACC*
- December 4-5 *HPC Monthly Workshop: Big Data*
- January 16 *HPC Monthly Workshop: OpenMP*
- February 12-13 *HPC Monthly Workshop: Big Data*
- **March 5** ***HPC Monthly Workshop: OpenACC***
- April 2-3 *HPC Monthly Workshop: Big Data*
- May 6-7 *HPC Monthly Workshop: MPI*
- June 3-6 *Summer Boot Camp*
- August 6-7 *HPC Monthly Workshop: Big Data*
- September 3-4 *HPC Monthly Workshop: MPI*
- October 1-2 *HPC Monthly Workshop: Big Data*
- November 5 *HPC Monthly Workshop: OpenMP*
- December 3-4 *HPC Monthly Workshop: Big Data*

# 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.
- General Agenda
  - As much hands on as we can fit...
  - but now 2 weeks of follow on accounts
- Learning is a social process
  - This is not a MOOC
  - This is the **Wide Area Classroom**
    - so raise your expectations

# Agenda

Tuesday, March 5<sup>th</sup>

- 11:00 Welcome
- 11:15 Computing Environment
- 11:45 Parallel Computing and Accelerators
- 12:15 Introduction to OpenACC
- 1:00 Lunch Break
- 2:00 Introduction to OpenACC and exercises
- 4:00 Using OpenACC with CUDA Libraries
- 4:30 Advanced OpenACC and OpenMP 4.0
- 5:00 Final Notes and Adjourn

# Resources

Your local 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.

# *Getting Time on XSEDE*

# XSEDE

Extreme Science and Engineering  
Discovery Environment

<https://portal.xsede.org/web/guest/allocations>



# Earn an XSEDE OpenACC Digital Badge



- Test yourself on what you learn from this workshop and earn a digital badge!
- Go to: <http://www.hpc-training.org/xsede/moodle/>
- Go to the course titled “XSEDE OpenACC Workshop” listed under ‘Available Courses.’



## **Check your email now for the post-event survey.**

Surveys are conducted by an external evaluation team. XSEDE staff will not know who said what. If you have questions regarding the evaluation please contact:  
Lorna Rivera, [lorna.rivera@ceismc.gatech.edu](mailto:lorna.rivera@ceismc.gatech.edu), or  
Lizanne DeStefano, [ldestefano6@gatech.edu](mailto:ldestefano6@gatech.edu)

# Code of Conduct

XSEDE has an external code of conduct for XSEDE sponsored events which represents XSEDE's commitment to providing an inclusive and harassment-free environment in all interactions regardless of gender, sexual orientation, disability, physical appearance, race, or religion. The code of conduct extends to all XSEDE-sponsored events, services, and interactions.

Code of Conduct: <https://www.xsede.org/codeofconduct>

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