

# Welcome to the XSEDE OpenMP Workshop

John Urbanic  
Parallel Computing Scientist  
Pittsburgh Supercomputing Center

# Who are we?

*Your hosts:*  
Pittsburgh Supercomputing Center

# 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 and Machine Learning

Mostly for XSEDE platforms. Mostly to extreme scalability.

# XSEDE HPC Monthly Workshop Schedule

- January 21 *HPC Monthly Workshop: OpenMP*
- February 19-20 *HPC Monthly Workshop: Big Data*
- March 3 *HPC Monthly Workshop: OpenACC*
- April 7-8 *HPC Monthly Workshop: Big Data*
- May 5-6 *HPC Monthly Workshop: MPI*
- June 2-5 *Summer Boot Camp*
- August 4-5 *HPC Monthly Workshop: Big Data*
- September 1-2 *HPC Monthly Workshop: MPI*
- October 6-7 *HPC Monthly Workshop: Big Data*
- November 3 *HPC Monthly Workshop: OpenMP*
- December 1-2 *HPC Monthly Workshop: Big Data*
- **January 12** ***HPC Monthly Workshop: OpenMP***
- February 2-3 *HPC Monthly Workshop: Big Data*
- March 2 *HPC Monthly Workshop: OpenACC*
- April 5-6 *HPC Monthly Workshop: Big Data*
- May 11-12 *HPC Monthly Workshop: MPI*
- June 1-4 *Summer Boot Camp*

# 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
  - But this is also not the **Wide Area Classroom**  
...so bear with us.

# Code of Conduct

XSEDE has an external code of conduct which represents our commitment to providing an inclusive and harassment-free environment in all interactions regardless of race, age, ethnicity, national origin, language, gender, gender identity, sexual orientation, disability, physical appearance, political views, military service, health status, or religion. The code of conduct extends to all XSEDE-sponsored events, services, and interactions.

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

Contact:

- Event organizer: Tom Maiden (tmaiden@psc.edu)
- XSEDE ombudspersons:
  - Linda Akli, Southeastern Universities Research Association ([akli@sura.org](mailto:akli@sura.org))
  - Lizanne Destefano, Georgia Tech ([lizanne.destefano@ceismc.gatech.edu](mailto:lizanne.destefano@ceismc.gatech.edu))
  - Ken Hackworth, Pittsburgh Supercomputing Center ([hackworth@psc.edu](mailto:hackworth@psc.edu))
  - Bryan Snead, Texas Advanced Computing Center ([jbsnead@tacc.utexas.edu](mailto:jbsnead@tacc.utexas.edu))
- Anonymous reporting form available at <https://www.xsede.org/codeofconduct>.

# Terminology Statement

In line with XSEDE's Code of Conduct, XSEDE is committed to providing training events that foster inclusion and show respect for all. This commitment applies not only to how we interact during the event, it also applies to the training materials and presentation. It is not XSEDE's position to use, condone, or promote offensive terminology.

XSEDE instructors strive to keep inclusive language at the forefront. In the event that we have included inappropriate materials, verbal or written, please let us know at [terminology@xsede.org](mailto:terminology@xsede.org). While XSEDE has no control over external third-party documentation, we are taking steps to effect change by contacting the relevant organizations; we hope this will be addressed by all third-parties soon.

*If you see any terminology concerns in the following presentation or slides, we want to know!  
Please contact the Terminology Task Force: [terminology@xsede.org](mailto:terminology@xsede.org)*



## **Check your email 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@gatech.edu](mailto:lorna.rivera@gatech.edu), or Lizanne DeStefano, [ldestefano6@gatech.edu](mailto:ldestefano6@gatech.edu)



# *Getting Time on XSEDE*

# XSEDE

Extreme Science and Engineering  
Discovery Environment

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

even simpler:

<https://psc.edu/apply-for-an-xsede-startup-grant>

# Agenda

Tuesday, January 12<sup>th</sup>

- 11:00 Welcome
- 11:15 Computing Environment
- 11:30 It's a Multi-core World
- 12:00 Intro to OpenMP
- 1:00 Lunch Break
- 2:00 Exercise 1
- 2:45 Advanced OpenMP
- 4:00 Exercise 2
- 4:30 OpenMP GPU Stuff Sneak Peek
- 5:00 Adjourn