

Welcome to the 2019 XSEDE Summer Boot Camp

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Who are we?

Your hosts:

Pittsburgh Supercomputing Center

Our satellite sites:

Tufts University
Yale University
University of Utah
Purdue University
Boston University
Lehigh University
Clarkson University
New York University
Texas Tech University
University of Cincinnati
University of Delaware
Arizona State University
Old Dominion University
George Mason University
Carnegie Mellon University
Pennsylvania State University
North Carolina State University
University of Colorado Boulder
University of Houston-Clear Lake
University of California, Los Angeles
Lawrence Berkeley National Laboratory
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 and 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.
- Summer Boot Camp is most ambitious HPC workshop ever
 - but we know what we are doing
- Learning is a social process
 - This is not a MOOC
 - This is the *Wide Area Classroom*

Agenda

Monday, June 3

- 11:00 Welcome
- 11:15 Computing Environment
- 11:45 Intro To Parallel Computing
- 12:30 Intro To OpenMP
- 1:30 Lunch Break
- 2:30 Exercise 1
- 3:15 More OpenMP
- 4:30 Exercise 2
- 5:00 Adjourn

Tuesday, June 4

- 11:00 Intro To OpenACC
- 12:00 Exercise 1
- 12:30 Intro To OpenACC (cont.)
- 1:00 Lunch Break
- 2:00 Exercise 2
- 2:45 Introduction to OpenACC (cont.)
- 3:00 Using OpenACC with CUDA Libraries
- 3:30 Advanced OpenACC
- 4:00 OpenMP 4.0 Sneak Peek
- 5:00 Adjourn

Agenda

Wednesday, June 5

11:00 Introduction to MPI

1:00 Lunch break

2:00 Intro Exercises

3:10 Intro Exercises Review

3:15 Super Scalable Programming: Laplace code

3:45 Laplace Exercise

5:00 Adjourn

Thursday, June 6

11:00 Laplace Exercises

12:30 Laplace Solution

1:00 Lunch break

2:00 Advanced MPI

3:00 Outro to Parallel Computing

4:00 Parallel Tools

4:20 Hybrid Computing

You'll know this by the time we get there

5:00 Adjourn

Resources

Your local TAs

Questions from the audience

On-line talks

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.



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, lirivera@Illinois.edu, or Lizanne DeStefano, ldestefano6@gatech.edu

Code of Conduct

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

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Getting Time on XSEDE

XSEDE

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