

SC07 Student Program



Sunday, November 11, 2007

7:00 – 8:00		Breakfast * Student Volunteers – eat at Student Volunteer office * SC Education Participants – D1-2-3
8:30 – 10:00	E1-2-3	Plenary Session – Meeting the Challenge of Petascale Computing – Thom Dunning Pathways to Petascale – Bob Panoff
10:30 – 12:00		SC Education Parallel Hands-On Sessions – Group 1
	E1-2-3	* Introduction to 3D Scientific Visualization
	D4	* LPCE – Creating a System Wider Model for Serving Students with Print-Related Disabilities in Post Secondary Settings
	D5	* Agent Systems
	D6	* Systems Dynamics
	D7	* Numerical Systems
	D9	* Grid Computing
	D10	* Nano-Based Education Through Generation-nano.org and nanoHUB.org
12:00 – 1:30		Lunch * Student Volunteers – eat at Student Volunteer office * SC Education Participants – D1-2-3
1:30 – 3:00		SC Education Parallel Hands-On Sessions – Group 1 Continued
3:30 – 5:00		SC Education Parallel Hands-On Sessions – Group 2
	E1-2-3	* Mashup Madness: An Introduction to GIS and Map Mashups
	D4	* LPCE – Overview of Issues and Opportunities using Computational Science LPCE with an emphasis on Available Applications for STEM Instruction
	D5	* Assessment of the Student Learning Process in Computational Science
	D6	* Maya
	D7	* Creating Java Simulations for Physics Teaching with Easy Java Simulations
	D9	* Grid Computing
	D10	* Metaverses

SC07 Student Program



Monday, November 12, 2007

7:00 – 8:00		Breakfast * Student Volunteers – eat at Student Volunteer office * SC Education Participants – D1-2-3
8:30 – 5:00	D10	Onsite Student Competition – Registered Teams Only
8:30 – 9:00	E1-2-3	SC Education Keynote Address: Empowering Students as Computational Science Professionals by Angela Shiflet
9:30 – 10:00	E1-2-3	SC07 Conference Highlights Presentation * Technical Program * Exhibits * Broader Engagement * SCinet
10:30 – 12:00		SC Education Parallel Hands-On Sessions – Group 3
	E1-2-3	* Chemistry
	D4	* Biology
	D5	* Physics
	D6	* Computer Science
	D7	* Humanities, Arts, and Social Sciences
	D9	* Computation to Enable, Enlighten, and Enliven Mathematics Education
12:00 – 1:30		Lunch * Student Volunteers – eat at Student Volunteer office * SC Education Participants – D1-2-3
1:30 – 3:00		SC Education Parallel Hands-On Sessions – Group 3 Continued
3:30 – 5:00		SC Education Parallel Hands-On Sessions – Group 4
	E1-2-3	Debugging, Performance Analysis, and Tuning of Parallel and Distributed Software
	D4	Getting Started with TeraGrid Resources and Science Gateways
	D5	Matlab Tutorial
	D6	Web 2.0 for e-science
	D7	Condor
	D9	Monte Carlo in Reno: Playing Russian Roulette in Science: Chances are Your Chances Aren't
5:00 – 6:00	E1-2-3	Computational Science, A Better Model for Science Education?

Rubin Landau, Angela Shiflet, Jose Munoz, Bob Panoff, Brent Gorda, Yan Xu, Tom Murphy, et al

A free-wheeling discussion to gravitate towards a definition of computational science education, why it should be taught, whether it is a better model for science education than the traditional ones, and how it may be incorporated into an already-full curriculum. The audience is a valued member of panel with additional input from those in the trenches.

SC07 Student Program



Tuesday, November 13, 2007

7:00 – 8:00		Breakfast * Student Volunteers – eat at Student Volunteer office * SC Education Participants – D1-2-3
8:30 – 10:00	Ballroom	SC07 Conference Keynote Address: Programming Bits and Atoms by Neil Gershenfeld
10:00 – 11:00	D9	Being Prepared to Seize Opportunities Yan Xu, Microsoft Research The practice of science is going through a significant transformation due to rapid advances in computational technologies. It opens new education and career opportunities at intersections of multiple disciplines including Computer Science, natural sciences, social sciences, and liberal arts. In this talk, Dr. Xu will share her experience of how to land a career position better than dreamed. She will discuss how to prepare for a career opportunity, some of the key job interview techniques, and introduce a new interdisciplinary research program in education at Microsoft Research: Computational Education for Scientists.
11:00 – 12:00	D9	Blue Collar Computing Ashok Krishnamurthy, Ohio Supercomputer Center's Director of Research
11:00 – 11:30	E1-2-3	Announcement of Student Competition Award Winners
12:00 – 1:30		Lunch * Student Volunteers – eat at Student Volunteer office * SC Education Participants – D1-2-3
1:30 – 3:00		SC Education Parallel Hands-On Sessions – Group 5
	E1-2-3	* HPC University Resources & CSERD-NDSL Resources
	D4	* Interactions in Understanding the Universe
	D5	* Bootable Cluster CD (BCCD)
	D6	* Getting Started Using Open Science Grid Resources
3:30 – 5:00	Meet in Education Booth	Mysteries of the Conference Floor Explained Scott Lathrop, Dave Cooper, Tom Murphy and Kristina Wanous See the controlled chaos of the conference floor first hand to interpret broo-ha-ha and the people milling about as new things to consider learning. Overview of the Conference Floor: * nomenclature: faculty, students, suits, salesfolk, entrepreneurs, boothbabes and boothdudes, typical unique hardware, typical unique network fabric, typical unique software, and chachkis. * events of the floor: events of the floor: vendor presentations, vendor spiels, student presentations, magic acts, off-the-conference-floor-technical-presentations.

SC07 Student Program



Wednesday, November 14, 2007

- 10:00 – 10:30 D7 Supercomputing in Plain English: Overview
- What is supercomputing? What is it used for? How does it work? In this one-hour presentation, we'll learn everything important about supercomputing, with nothing left out -- and in a way that everyone from grade school kids to your grandparents can understand.
- Henry Neeman
- 11:00 – 12:00 D7 Internships at Pittsburgh Supercomputing Center and Beyond
- Laura McGinnis
- This session will present the PSC internship program, from both the students' and Center's perspective, including examples of the work that PSC students are doing to advance scientific computing as well as resource support. We will provide an opportunity for students, supervisors, and other interested people to talk about internship opportunities and offering pre-service opportunities to high school and college students. Discussions will focus on sharing successful strategies for capitalizing on the enthusiasm and availability of the next wave of scientists and technologists.
- 1:00 – 2:00 D7 HPC Tuning & Parallel Computing in Plain English
- Paul Gray
- If history be our guide, today's high-performance computing (HPC) hardware and software will be on desktop machines in less than a decade, and so now's a good time to learn about about using them. Depending on the coverage of the previous talk, we may start with some concrete exercises that explore how a high-performance computer's memory and central processor design affects program execution. We then will examine parallel computers, both their promise and their shortcomings, from a practitioner's point of view. Some non-detailed examples of the use of the Message Passing Interface (MPI) package will aim to demonstrate the basic concepts behind this very popular form of parallel computing.
- 2:00 – 3:00 D7 HPC Hardware and Performance Tuning
- Paul Gray
- Learn the mysteries of HPC performance through exploring PAPI Performance Application Programming Interface), PerfMon (Performance Monitor), and gprof (GNU profiler). PAPI aims to provide the tool designer and application engineer with a consistent interface and methodology for use of the performance counter hardware found in most major microprocessors. PerfMon is a simple but very usable performance monitoring tool for network elements like routers and switches. gprof helps determine which parts of a program are taking most of the execution time.
- 3:00 – 4:00 D7 Anatomy of a LittleFe
- Charlie Peck
- All the details related to the design and construction of a LittleFe, a six-node cluster in a suitcase. What's it made of? How does it work? How can I make my own?

4:00 – 5:00 D7 The TeraGrid, its Staff, and Student Opportunities

Nancy Wilkins-Diehr of SDSC- Moderator, Kelly Gaither of TACC, Scott Lathrop of ANL, Shaun Brown of PSC, Craig Stewart of IU, Ray Sheppard of Indiana U, Krishna Muriki of SDSC, Laura McGuinnis of PSC, Diglio Simoni of RTI, Randy Heiland of Indiana U, Michael Oberg of UCAR, Daniel S. Katz of ISU, Conrad Steenberg of CalTech and Gabrielle Allen of LSU

The TeraGrid is one of the flagship programs of the National Science Foundation's Office of Cyberinfrastructure. Come hear about the program from a panel of staffers from throughout the project. We will talk about our day-to-day activities, what training and education lead us to where we are now and student opportunities that are available at our institutions. Please join us!

SC07 Student Program

Thursday, November 15, 2007



10:00 – 11:00 D10 TeraGrid Student Competition Opportunities

Jessie Bemley and Paul Gray

Overview of the requirements of the three student competitions held at TeraGrid. There are seven categories (high school through graduate) spread across the competitions. So come to see how you can participate to win money, iPods, and crystal awards. Meet the students who won the prizes.

11:00 – 12:00 D10 Technologies on the HPC Horizon

Stephen Wheat, Intel

Intel has been at the forefront of the HPC revolution as evidenced by the number of Intel-based systems on the Top 500 (www.top500.org). As Intel's strength in silicon process technology continues to accomplish "Moore's Law", we anticipate future transistor budgets that will avail great levels of performance at the processor, node, and system levels. Come learn of Intel in HPC as well as some pointers on the experience and knowledge you will need for a successful career at Intel and other HPC companies.

3:00 – 4:00 D10 The ACME Opportunity

Tom Murphy, Kristina Wanous, et al

In general, this is about recognizing ways to collaborate with faculty and the benefits of these collaborations. In particular, it is about your opportunity to collaborate with the ACME effort, Advancing Computational Science Education. ACME is the LittleFe (portable educational cluster) hardware effort, the BCCD (bootable cluster CD) software effort, and the CSERD (Computational Science Education REference Desk) curricular effort. Note that his Student Days program, and the larger SC07 Educational Program, are powered by ACME folk.