

CONNECT

The e-newsletter of SIGHPC



ACM Special Interest Group on High Performance Computing

Volume 2, Issue 1
October 2013
ISSN 2168-135X

From the Chair

Serving with Distinction

I am very pleased to begin this issue of CONNECT by saying that congratulations are in order for a number of SIGHPC members: leaders of today and tomorrow! First, please join me in congratulating **Jack Dongarra** – SIGHPC’s own Awards Coordinator – who has been selected as this year’s recipient of the prestigious **ACM/IEEE-CS Ken Kennedy Award**. Jack is probably best known for founding the Top500 List, but his career includes an amazing range of accomplishments spanning research, practice, and service to the community. We’re proud that he was one of the founding members of SIGHPC and serves on our Advisory Board. You can read the full press release by following the link on our [homepage](#).

As you may recall, SIGHPC has teamed with ACM’s Women in Computing (ACM-W) committee to help undergraduate and graduate women students attend the annual SC conference through our new travel grants program. The ACM-W typically limits funding to a maximum of one person per conference; however this year’s SIGHPC applicants were so outstanding that three student members of SIGHPC are receiving grants to attend SC13! Second, I hope you’ll all join me as well in congratulating the first winners in SIGHPC’s new travel grants program – our leaders of tomorrow:

- * Himeshi De Silva, undergraduate at University of Moratuwa (Sri Lanka)
- * Cindy Solano, MS candidate at Universidad Industrial de Santander (Colombia)
- * Mary Phillips, undergraduate at Southwestern Oklahoma State University (USA)

Another three student members will be receiving **SIGHPC Travel Grants**:

- * Milind Chabbi, PhD candidate at Rice University
- * Stephanie Labasan, PhD candidate at University of Oregon
- * Brian McClure, Undergraduate at University of South Carolina Beaufort

We can all look forward to reading comments from some of these students in the February newsletter.

Election Results

Of course, I’d also like to congratulate the people who you selected to serve on the SIGHPC Executive Committee. Jeff Hollingsworth, Becky Verastegui, and I will continue as SIGHPC’s officers, and we now welcome the first Members-at-Large, Torsten Hoefler and Rajeev Thakur. Read more about us elsewhere in this issue.

A Learning Community

I’m also pleased to share news of a pilot project we have established with ACM for handling the proceedings of workshops held in conjunction with the SC conference. Beginning this year, workshops that solicit papers openly, and select papers through peer-review, can apply through SIGHPC to have their proceedings published separately in the ACM Digital Library. For our partner events this development provides broader visibility and name recognition; for the HPC community, this means broader access to the very latest developments in our field.

Annual Member Meeting

Lastly, don’t forget that SC week means it’s time for our annual SIGHP Members Meeting! We are looking forward to seeing you at the meeting on Tuesday, 19 November, from 12:15 – 1:15 in room 605.

Cherri Pancake
Chair, SIGHPC

Meet the SIGHPC Officers

SIGHPC had its first election of officers. These people have volunteered their time to represent the SIGHPC membership in the running of your special interest group. SIGHPC Connect asked each new officer to say a little bit about themselves. Introduce yourself to them and tell them what you think of SIGHPC!

Torsten Hoefler (Member at Large)

is Assistant Professor of Computer Science and director of the Scalable Parallel Computing Lab at ETH



Zurich in Switzerland. He won the SIAM 2012 Junior Scientist Prize in Supercomputing and was named a Young Achiever in Scalable Computing in 2013. Torsten loves to optimize, in the real world as much as in computer science contexts. HPC is thus his natural home. Torsten also likes to take his group on (efficient) power-hikes in the nearby alps.

Jeff Hollingsworth (Vice Chair):

I got into HPC via parallel computing. Back in the 1980's I was convinced that sequential computing was going to



run out of steam and the action was in parallel computing. While ultimately true, I (along with many of you) spent the 1990s wondering if I had bet my career on the wrong outcome. I have remained in HPC and scientific computing because it's exciting to work in a field where the goal of computation is to advance the state of societies'

knowledge rather than compute bank balances or deliver TV shows to mobile phones.

Cherri Pancake (Oregon State University) (Chair):

I'm a professor of EECS and director of an interdisciplinary research center. What I find most exciting about HPC is the incredible mix of people involved.



As an academic, it's too easy to find myself interacting primarily with other faculty and students. By interacting with HPC folks from industry and research labs at workshops, on committees, and though SIGHPC (!), I get exposed to other perspectives and insights that make my work much stronger.

Rajeev Thakur (Member at Large)

is the Deputy Director of the Mathematics and Computer Science Division at Argonne National Laboratory, where he is also



a Senior Computer Scientist. He is also a Senior Fellow in the Computation Institute at the University of Chicago and an Adjunct Professor in the Department of Electrical Engineering and Computer Science at Northwestern University. He received a Ph.D. in Computer Engineering from Syracuse University in 1995. Rajeev was Technical Program Chair of the SC12 conference. Rajeev got into the HPC field because he likes performance-related work. He likes squeezing the last 10-20% in performance out of a code, for example.

Becky Verastegui (Treasurer):

I got involved in the SC conference back in the mid-90s and became connected to the HPC world at that time. I have been very active in the SC Conference



series for over 15 years and was Chair of SC07. I have been on the SC Conference Steering Committee for ten years and have also served as SC Conference Vice Chair, Exhibits Chair, and Finance Chair. I was the Treasurer for SIGHPC in its initial startup phase and am excited to be a part of the evolution. I have worked at the Oak Ridge National Laboratory for over 35 years and have had the pleasure of watching the transformation of high performance computing over these years. I believe the best is yet to come!

Come to the Annual SIGHPC Members Meeting at SC13!

Calling all members! Don't miss the annual SIGHPC Members Meeting, which will take place at SC13. Be sure to encourage prospective members to attend as well. SIGHPC officers and volunteers will share what has been accomplished to date, provide tips about resources available to members, and get audience input on priorities for the future. Join us for a lively discussion of what you think is important to advance your HPC activities.

Tuesday, November 19
12:15 - 1:30 PM
Room 605 at SC13 (Colorado Convention Center)

Looking forward to SC13!

By Bill Gropp, SC13 General Chair and SIGHPC Newsletter Editor

Long-time HPC community members know that SC is the hub of our community. While there are many, many excellent



technical conferences in HPC, SC is the largest and most diverse conference in our community. Recent conferences have brought together more than 10,000 attendees during conference week from all over the world, truly making it the international conference for high performance computing, networking, storage, and analysis. SC is sponsored each year by the Association for Computing Machinery and the IEEE Computer Society, and is the largest event that SIGHPC sponsors.

In many ways, SIGHPC evolved from the SC conference, a heritage that is reflected in the SIGHPC focus on educating and elevating the practitioners of our community. Each year SC pulls together the most complete cross-section of the technical work currently being pursued in supercomputing — this is reflected in the quality of the technical papers, the depth of the educational and engagement opportunities, and the breadth of technologies and research showcased on the exhibit floor. A quick look at the topics that will be featured this year shows that our tag line, “HPC Everywhere, Everyday” reflects the impact that HPC, and the people that attend SC, have on all aspects of society around the world.

Inside the Convention Center, things will be bustling at SC13. We’re expecting more than 350 exhibitors spread over nearly 140,000 square feet of exhibit space. With 26 meeting rooms dedicated to the Technical Program, Exhibitor

Forum, Tutorials, Workshops, and HPC Interconnections, and two ballrooms for Technical Program events, there’ll be plenty of space for all of our events, yet laid out in a way that makes it quick and easy to find your way around.

SC’s continuing goal is to provide an informative, high-quality technical program that meets the highest academic standards. The Technical Program is highly competitive and one of the broadest of any HPC conference, with venues ranging from invited talks, panels, and research papers to tutorials, workshops, posters, and Birds-of-a-Feather (BOF) sessions. And this year we are honoring SC’s legacy of success by extending peer review to cover every aspect of the technical program. I am also exciting by the Emerging Technologies exhibits we have added to the program this year: these are peer-reviewed research projects that will be demonstrated on the show floor. Whether you are unveiling new research for the first time, or helping teach the HPC body of knowledge to the next generation, being part of the SC technical program is a rite of passage in any HPC career.

SC is fundamentally a technical conference, and anyone who has spent time on the show floor knows that the SC Exhibits program provides a unique opportunity to interact with the future of HPC. Far from being just a simple industry exhibition, our research and industry booths showcase recent developments in our field, with a rich combination of research labs, universities, and other organizations and vendors of all types of software, hardware, and services for HPC.

HPC Interconnections, or “HPCI” for short, is our new name for the SC Communities program. The new name reflects our renewed emphasis on providing an “on ramp” into the excitement that is SC and the field of high performance computing. HPCI is designed to help everyone get more out of the conference than ever, providing programs for everyone interested in

building a stronger HPC community, including students, educators, researchers, international attendees and under-represented groups.

One of the defining characteristics of SC is SCinet, the conference network that, for the week of the conference, is one of the largest and most advanced networks in the world. While many attendees experience SCinet directly as wireless networking that is provided throughout the Convention Center, SCinet also provides a once-a-year opportunity for research and engineering groups to work with some of the most modern networking equipment and very high bandwidth wide area networking. This year, SCinet will exceed 1Terabit/second of networking bandwidth! During the conference, please be sure to stop by the SCinet booth for more information on the networking infrastructure, and check out the SCinet research exposition presentations on Thursday to witness firsthand the future of high performance networks.

This year the Conference will mark its 25th anniversary. In recognition of our silver anniversary, and of the lasting contribution that our participants have made to the HPC state-of-the-art, we are hosting several new activities that look back on the progress in our field as seen through the lens of SC. There are exhibits of technology, many of which were first described or seen at SC, on the exhibit floor. A panel will talk about what we’ve learned over the years, and how that can help us as we confront the coming end of Moore’s law and the changes in software, algorithms, and hardware that will be required in the coming decade. Also new this year is a new award for the most influential paper presented at SC that has stood the test of time in our “Test of Time” award.

See you in Denver!

For a quarter of a century, the Supercomputing Conference has served as the crossroads for the entire HPC community. Denver is a community at the crossroads of the country, located

near the center of the continental United States, at the convergence of mountain and prairie, where high-rise buildings greet open range and the earth touches the sky. I can't think of a better place to celebrate SC's rich past, and our community's bright future. See you there.

Online registration for SC13 is now open and attendees can save as much as \$225 (members of ACM, SIGHPC, or IEEE-CS) on technical program registration if they register by October 15th. To register, please see <http://sc13.supercomputing.org/content/registration>. For general information, including the technical program schedule, please see <http://sc13.supercomputing.org/>.

Upcoming Workshops

Check out these conferences and workshops that are being held in cooperation with SIGHPC, and during the SC Conference, which is sponsored in part by SIGHPC. In all cases, proceedings will be published by ACM and will be available to SIGHPC members through the ACM Digital Library.

- **WORKS'13: 8th Workshop on Workflows in Support of Large-Scale Science** (Denver, 17 Nov 2013).
- **IA³ 2013: Workshop on Irregular Applications: Architectures & Algorithms** (Denver, 17 Nov 2013).
- **E2SC: Energy-Efficient SuperComputing** (Denver, 17 Nov 2013).
- **NDM: Third International Workshop on Network-Aware Data Management** (Denver, 17 Nov 2013).
- **UltraVis: Eighth Workshop on Ultrascale Visualization** (Denver, 17 Nov 2013).
- **PDSW 2013: 8th Parallel Data Storage Workshop** (Denver, 18 Nov 2013).
- **DISCS-2013: 2013 International**

Workshop on Data-Intensive Scalable Computing Systems (Denver, 18 Nov 2013).

- **WHPCF'13: Sixth Workshop on High Performance Computational Finance** (Denver, 18 Nov 2013).
- **ScalA: Workshop on Latest Advances in Scalable Algorithms for Large-Scale Systems** (Denver, 18 Nov 2013).
- **SEHPCCE: First International Workshop on Software Engineering for High Performance Computing in Computational Science & Engineering** (Denver, 22 Nov 2013).
- **VHPC'13: 8th Workshop on Virtualization in High-Performance Cloud Computing** (Denver, 22 Nov 2013).
- **HiPCNA-PG: Third International Workshop on High Performance Computing, Network and Analytics for the Power Grid** (Denver, 22 Nov 2013).

SIGHPC Webinar Breaks Records

In July SIGHPC made its first contribution to the ACM learning webinar series. Our Communications coordinator and Director of the Department of Defense High Performance Computing Modernization Program, John West, moderated this well-attended session. Our Newsletter Editor and the Thomas M. Siebel Chair in the Department of Computer Science, Deputy Director for Research for the Institute of Advanced Computing Applications and Technologies, and Director of the Parallel Computing Institute at the University of Illinois in Urbana-Champaign, William Gropp, was the featured speaker on the topic "Changing how programmers think about parallel programming". This webinar provided an introduction to parallel execution models, focusing on how programmers think about writing

programs.

For a first webinar we hit a home run, attendees overwhelmingly rated the talk highly with 92% of the 646 survey respondents rating the session 3 or higher on a scale of 5. Further an unusually high 62% felt we got the technical level just right. Attendance was also extremely high, of the 4826 registrants 1397 attended the session live and engaged in the interactive Q&A session. Another 938 registrants, including myself, have so far watched the session from its posting in the ACM learning center <http://learning.acm.org/webinar/>. If you have not already seen this session highly I recommend it. John kept the flow even through the introduction and Q&A, while Bill was informative and engaging from start to finish. We have set a high bar for future SIGHPC contributions to this series and I am excitedly waiting for the next session.

Papers Everyone Should Read

Are there papers that you think everyone should read? An old favorite or a new result? In each issue of SIGHPC Connect, we present papers suggested by our membership.

Rajeev Thakur, one of our new SIGHPC officers, suggests: "The Problem with Threads," by Edward A. Lee, IEEE Computer, Volume 39, Issue 5, May 2006, pp. 33–42. <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=1631937>. This paper discusses the difficulty of programming with threads. Your newsletter editor whole-heartedly agrees – this paper, along with "Threads cannot be implemented as a Library," by Hans-J. Boehm, in the proceedings of PLDI'05, pp. 261–268, <https://dl.acm.org/citation.cfm?doid=1065010.1065042>, should be required reading by anyone working with threads.

SIGHPC Officers

Chair	Cherri M. Pancake, Oregon State University	chair@sighpc.org
Vice-Chair	Jeff Hollingsworth, University of Maryland	vicechair@sighpc.org
Treasurer	Becky Verastegui, Oak Ridge National Laboratory	treasurer@sighpc.org
Newsletter Editor	Bill Gropp, University of Illinois Urbana-Champaign	newsletter@sighpc.org
Member Communications	John West, DoD HPC Modernization Program	communications@sighpc.org
Student Programs	Barbara Horner-Miller, BHM Consulting, LLC	students@sighpc.org

Ex Officio Members

SC Steering Committee Representative: Scott Lathrop, NCSA & Shodor

SIGHPC Advisory Board Chair: Wilf Pinfeld, Intel Corporation