Women in HPC Around the World BOF

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Abstract

Although women comprise more than half the world's population, they make up only a small percentage of people in the Science, Technology, Engineering, and Mathematics (STEM) fields, including the many disciplines associated with high-performance computing (HPC). There are numerous systemic causes of women's low participation in STEM fields, which differ very little across the globe. In this BOF we bring together women from different continents to share their stories and experiences and determine ways that we can boost the number of women around the globe enjoying the unique challenges and rewards of a career in HPC.

Summary

We have held BOFs on Women in HPC at every SC conference since 2010, but the focus has always been overwhelmingly North American. To remedy this, we held a BOF focusing on women outside of North America, featuring three accomplished women from other parts of the world.

The first speaker was Lorena Barba, associate professor of Mechanical Engineering at George Washington University (USA) and a native of Chile. From youth she aspired to be an aeronautical engineer, but only the Chilean Air Force academy offered a degree in this subject, and at the time they did not accept women. She instead earned an undergraduate degree in mechanical engineering from the Universidad Tecnica Federico Santa Maria in Chile, and earned a Master's and PhD in Aeronautics from Caltech. Today she leads a successful research group in computational fluid dynamics. She discussed the state of HPC in South America. South America has a good presence in the HPC field, particularly in Chile and Brazil, but lags behind some other regions. There are opportunities for women in HPC, but few women choose to enter the field.

The second speaker was Silvia Delgado Olabarriaga, Assistant Professor at the Academic Medical Center at the University of Amsterdam (The Netherlands) and a native of Brazil. Silvia's career began in computer graphics in Brazil, and she pursued further studies in Portugal and eventually at the University of Amsterdam, where she earned a PhD in Medical Imaging. Today she trains students and leads the effort to create a science gateway for the biomedical field. She discussed the state of HPC in Europe. Europe has a vibrant HPC field; many of the top supercomputers in the world are located there, and there is consistent funding for HPC efforts. As for women in HPC, she showed a depressing statistic on women's participation in the ICT sector in Europe: that of 1000 women

university graduates, only 29 graduated in ICT fields, 4 of whom went on to work in ICT. Europe does have some initiatives to increase the participation of women in the technological fields.

The third speaker was Akshara Kaginalkar, Associate Director & Head of Department, Computational Earth Science Group at C-DAC in India. She spoke about her experience being a user of one of the first supercomputers in India, which launched her into a career in HPC. Serendipitously she was studying physics near the room where they were setting up the machine, and she took an interest in it and became one of the early developers for it. The HPC field is a priority for the Indian government, and India has some powerful supercomputers, including a ~800 TF machine. But there are not very many women in the Indian IT industry, and an even lower percentage in the HPC field. C-DAC employs 90% of all the women in the HPC field in India.

After the panelists, there was time for a few questions. There were discussions about the pervasive stereotypes about computing (e.g., lone nerd, hero coder, female-unfriendly), and the fact that dismantling these stereotypes would benefit women and men alike; the need for a TV show glamorizing HPC, as it has done for forensics through shows like CSI, which has attracted a lot more women into the forensics field; and opportunities for international collaborations involving women.

In addition, we discussed ways to bridge the gap in female participation in the STEM fields and HPC in particular. It is challenging to stay in touch globally, but we believe the internet can be a powerful tool. We have already established Women in HPC groups on LinkedIn and Facebook, and now are in the process of setting up a Systers in HPC email group as well.

When the session was over, a group of participants went to dinner together and discussed these topics further on an informal basis.