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Message from the Workshop Chairs

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Message from the Workshop Chairs

Welcome to the proceedings of EduHPC-21, the *Workshop on Education for High Performance Computing*, held in St. Louis, Missouri on November 14, 2021, in conjunction with the *International Conference for High Performance Computing, Networking, Storage and Analysis (SC'21)*. EduHPC has been a regular workshop of the SC conference since 2013, devoted to the development of reproducible educational and curricular innovations and resources for undergraduate and graduate education in High Performance Computing (HPC) and Parallel and Distributed Computing (PDC). The workshop particularly focuses on connecting individuals from academia, industry, national laboratories, and funding agencies with the goal of exchanging ideas on the enhancement and infusion of HPC, PDC, and Big Data education. EduHPC is in coordination with the IEEE TCPP curriculum initiative on parallel and distributed computing (<http://www.cs.gsu.edu/~tcpp/curriculum>) for computer science and computer engineering undergraduates and is supported by NSF and the NSF-supported *Center for Parallel and Distributed Computing Curriculum Development and Educational Resources (CDER)*.

In 2021, we received 8 full paper submissions from 3 countries. All manuscripts were reviewed by our expert program committee on their significance, innovation, technical quality, and reproducibility, with each paper receiving three to five reviews. The program committee met via teleconference and selected 5 papers to be included into these proceedings. EduHPC also features a Lightning Talks session where preliminary or ongoing research and innovative ideas can be presented. In 2021, we received 5 submissions of which 4 were accepted for presentation. In addition, EduHPC-21 also features a Peachy Parallel Assignments session (assignments ready for adoption by anyone teaching topics in HPC or PDC). 4 peachy assignments were submitted and 2 were accepted for presentation. We would like to thank David Bunde for his diligent work on coordinating the peachy assignments session.

EduHPC-21 featured a dynamic program, with opening and closing keynote addresses providing bookends to the day's sessions. The opening invited speaker was Ms. Alexandra (Sandy) Landsberg, the Division Director of Computer and Information Sciences at the Office of Naval Research on the topic of "*Real-world challenges from Edge to Exascale and Beyond.*" Her talk was followed by the first paper session under the theme *Diverse Approaches to Teaching HPC*, featuring papers on the challenges of training HPC users in three different contexts. This was followed by the *Lightning Talks* session featuring short talks relating new and emerging ideas, work-in-progress pedagogical efforts, short-term experience reports, and so on. Just before lunch, a *Call For Participation in the EduHiPC-21 Workshop* in Bangalore, India was presented. After lunch, the second paper session had the theme *Tools for Teaching HPC*, with papers focused on tools for visualization and automated testing. This was followed by *Community Announcements* sessions where new HPC resources, opportunities for collaborative research, announcements from Intel and Nvidia, and an update from the CDER team were shared with the EduHPC community. Next, the *Peachy Assignments* session presented two new assignments to enhance student engagement and learning via project-based learning. The workshop concluded with a closing invited talk by Mr. Paul Tymann, Program Director of the Division of Undergraduate Education of the National Science Foundation, who spoke on the topic of "*Parallel Computing, The Next Generation.*"

This excellent program could not have happened without the help of a strong and diverse program committee representing 28 institutions or organizations spanning a variety of different countries. Our sincere thanks go to the program committee members for their timely and thorough evaluation and dedicated work. We would also like to thank the SC Workshop coordinators Anshu Dubey, Mohamed Wahib, and Sivasankaran Rajamanickam for their help in making EduHPC-21 a great success. Finally, the workshop is made possible by the invaluable guidance and significant efforts provided by the EduHPC organizing committee members. Our genuine thanks go to Dorian Arnold, Martina Barnas, Steven Bogaerts,

David Brown, Valeria Cardellini, Debzani Deb, Samantha Foley, Eric Freudenthal, Sheikh Ghafoor, Nasser Giacaman, Anshul Gupta, Brian Larkins, Robert Montante, Tia Newhall, Virginia Niculescu, Brad Richards, Erik Saule, Elizabeth Shoop, John Stratton, Alan Sussman, Ramachandran Vaidyanathan, and Charles Weems.

Please visit the EduHPC-21 website at <https://tcpp.cs.gsu.edu/curriculum/?q=eduhpc21> for the online proceedings and presentation slides of the talks.

Joel Adams, Calvin University (Technical Program Chair)

Henry Gabb, Intel Corp. (Technical Program Vice Chair)

Sushil K Prasad, The University of Texas at San Antonio (Workshop Chair)

EduHPC 2021