EduHPC 2024: Workshop on Education for High-Performance Computing

Message from the EduHPC-24 Workshop Chairs

Welcome to the proceedings of EduHPC24, the Workshop on Education for High Performance Computing, held in Atlanta, Georgia on November 17, 2024, in conjunction with the International Conference for High Performance Computing, Networking, Storage and Analysis (SC24). 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 2024, we received 8 full papers, 6 lightning talks (preliminary or ongoing research and innovative ideas), and 4 Peachy assignments (ready-to-use assignments for teaching HPC or PDC concepts) submissions. 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 selected 4 papers, 5 lightning talks, and 2 Peachy assignments to be included into the EduHPC24 program.

A highlight of EduHPC24 was the invited talk by Valerie Taylor, Division Director of the Mathematics and Computer Science Division at Argonne National Laboratory as part of the two technical paper sessions, which covered pedagogical strategies for teaching parallel and distributed computing in undergraduate courses. This was followed by the Lightning Talks session featuring short talks relating to new and emerging ideas, work-in-progress pedagogical efforts, and short-term experience reports. The second paper session covered Diverse Approaches to Teaching HPC. Finally, the Peachy Assignments session presented two new assignments to enhance student engagement and learning via project-based learning. We closed this year's workshop with a Call For Participation in the EduHiPC-25 Workshop in Bangalore, India. This excellent program could not have happened without the help of a strong and diverse program committee representing 16 institutions or organizations spanning many 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 Janine Bennett and Bruno Raffin for helping to make EduHPC-24 successful.

We would like to extend our heartfelt thanks to the program committee members for their time and effort in reviewing the submissions for EduHPC 2024. Their invaluable feedback and expertise have played a crucial role in maintaining the quality of the workshop. Lastly, the workshop owes its success to the invaluable guidance and substantial efforts provided by the CDER center investigators, who served as the workshop organizing committee. We acknowledge the support of NSF (award # 2017590).

Please visit the EduHPC-24 website at https://tcpp.cs.gsu.edu/curriculum/?q=eduhpc24 for the online proceedings and presentations (papers, lightning talks, and Peachy assignments).

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