Advanced Simulations of Quantum Computations in conjunction with the IEEE International Conference on Quantum Computing and Engineering (QCE23)

Sunday, September 17, 2023 - Monday, September 18, 2023

Scientific Program

Advanced Simulations of Quantum Computations in conjunction with the IEEE International
Conference on Quantum Computing and Engineering (QCE23) / Scientific Program

Sunday, September 8, 2024

QCE'23 "Advanced Simulations of Quantum Computations" Workshop Program

Sunday Sep 17, 2023 (PDT times):

10:00 AM - 10:30 AM: Thomas Ayral, Eviden an Atos business, France: Quantum advantage: The importance of classical tools.
10:30 AM - 11:00 AM: Ang Li, Pacific Northwest National Laboratory, USA: NWQSim: Scalable simulation of quantum systems on heterogeneous supercomputers.
11:00 AM - 11:30 AM: Salvatore Mandrà (virtual), Quantum Artificial Intelligence Lab, NASA Ames, USA: Improved simulations of random quantum circuits.

1:00 PM - 1:30 PM: Henry Liu, University of Chicago, USA: Classical simulation of the boson sampling quantum supremacy experiments.
1:30 PM - 2:00 PM: Jeffrey Marshall, NASA Ames Research Center, USA: Simulation of quantum optics.
2:00 PM - 2:30 PM: Stefanos Kourtis (virtual), University of Sherbrooke, Canada: Finite-rate sparse quantum codes aplenty.

3:00 PM - 3:30 PM: Danylo Lykov, Argonne National Laboratory, USA: Change of basis to improve density matrix simulations.
3:30 PM - 4:00 PM: Yue Sun, JPMorgan Chase, USA: Fast simulation of high-depth QAOA.
4:00 PM - 4:30 PM: Teague Tomesh, Infleqtion, USA: Quantum contextuality and GPU-enabled simulations of contextual machine learning.

Monday Sep 18, 2023 (PDT times):

10:00 AM - 10:30 AM: Aleksander Wennersteen, PASQAL, France: Pulse-level simulation of Rydberg atom based quantum processors.
10:30 AM - 11:00 AM: Pedro Lopes, QuEra, USA: Bloqade - efficient emulation and easy operation of neutral-atom quantum computers.
11:00 AM - 11:30 AM: Korbinian Kottmann (virtual), Xanadu, Canada: Differentiable pulse programming in PennyLane.

1:00 PM - 1:30 PM: James Allen, University of Illinois Urbana-Champaign, USA: Simulating neutral atom quantum systems with tensor network states.
1:30 PM - 2:00 PM: Benjamin Villalonga, Google AI Quantum, USA: What is the classical computational cost of today's largest scale quantum computations?
2:00 PM - 2:30 PM: Miles Stoudenmire (virtual), Flatiron Institute, USA: Manipulating Functions using Quantum Algorithms on Classical Machines

3:00 PM - 3:30 PM: Dmitry Lyakh, NVIDIA, USA: cuQuantum SDK: A high-performance library for accelerating quantum science.
3:30 PM - 4:30 PM: Discussion: Open challenges in classical simulations of quantum computations.