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Quantum noise modeling through Reinforcement Learning

Tuesday, 29 October 2024 17:00 (20 minutes)

This work presents a novel machine learning approach to characterize the noise impacting a quantum chip and emulate it during simulations. By leveraging reinforcement learning, we train an agent to introduce noise channels that accurately mimic specific noise patterns. The proposed noise characterization method has been tested on simulations for small quantum circuits, where it consistently outperformed randomized benchmarking, a widely used noise characterization technique. Furthermore, we show a practical application of the algorithm using the well-known Grover's circuit.

Sessione

Altro

Primary authors: SOPENA, Alejandro (Instituto de Física Teórica, UAM-CSIC, Universidad Autónoma de Madrid, Cantoblanco, Madrid, Spain); PAPALUCA, Andrea (Quantum Research Centre, Technology Innovation Institute, Abu Dhabi, UAE); BUTTARINI, Piergiorgio (Quantum Research Centre, Technology Innovation Institute, Abu Dhabi, UAE.); BORDONI, Simone (Sapienza universita di Roma); CARRAZZA, Stefano (Istituto Nazionale di Fisica Nucleare); GIAGU, Stefano (Sapienza Università di Roma and Istituto Nazionale di Fisica Nucleare)

Presenter: BORDONI, Simone (Sapienza universita di Roma)

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