QSUN Quantum Research Group of Stellenbosch University

SA QuTI South African Quantum Technology Initiative

NITheCS National Institute for Theoretical and Computational Sciences

Stellenbosch University iYunivesithi Universiteit

WORLD QUANTUM DAY APRIL 14

SEMINAR

Quantum Computing Enhanced Service Ecosystem for Simulation in Manufacturing

Rivan Rughubar (Forschungszentrum Jülich, Germany)

Friday, 12 April 2024 @ 14h00-15h00 SAST

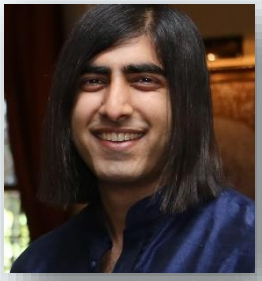
Venue: Physics Seminar Room, Stellenbosch University, and online

ABSTRACT

Quantum computing and quantum machine learning are still in their early stages but have the potential to cause paradigm shifts in computing and industry. Faster or more accurate numerical simulations can lead to improvements in engineering and the manufacturing industry. In this talk I will show how we are attempting to apply quantum machine learning to industry data with a laser cutting use case. I will also discuss how these methods compare to other classical machine learning methods. This falls under the QUASIM project which aims to propose a framework for a quantum computing-enhanced service ecosystem for simulation in manufacturing.

BIOGRAPHY

Rivan is currently a PhD researcher in the Institute for Quantum Computing Analysis at Forschungszentrum Jülich under Frank Wilhelm-Mauch and Tobias Stollenwerk. He completed his undergraduate and MSc at the University of Cape Town under the supervision of Jonathan Shock. His research focuses on quantum algorithms for machine learning and kernel methods in quantum computing.



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