Rishi Sreedhar

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Publication Summary: Link

I am a self-motivated **Quantum Algorithms Researcher** with a proven track record in independent creative thinking. I take immense joy in converting ideas into code and possess an avid interest in computational physics. I am also keen on building open quantum ecosystems and am devoted to scientific outreach aimed at making abstract ideas accessible to diverse audiences.

RESEARCH EXPERIENCE

Chalmers University of Technology — *Researcher*
Gothenburg, Sweden — October 2019 - Present

- Created a **tensor network based general classical toolset** to test for quantum advantage in algorithms like QAOA**.**
- Demonstrated that **classically approximated QAOA works equally well** for certain problems establishing more focused investigations into a quantum advantage using QAOA. [arxiv.org/abs/2207.03404]
- The devised approximation of QAOA produces between **99.9% to 100% optimal solutions in all 40 and 60-qubit systems studied**.

Indian Institute of Technology Guwahati — *Project Assistant*
Guwahati, India — August 2017 - June 2018

- Closely collaborated with experimentalists to **provide a theoretical model for observed atypical magnetic responses** in organic crystals.
- Provided this missing piece facilitating the work to be published.

OUTREACH EXPERIENCE

QIndia — *Founder*
November 2020 - Present

- Leveraged personal network to collaboratively establish a growing **900+ strong open quantum community of volunteers in India.**
- Organized free introductory quantum programming workshops having **750+ attendees** and **300+ successful participants.**
- Established **collaborations and projects** among parties including the Center of Development of Advanced Computing, **Gov. of India**.

EDUCATION

KU Leuven + Chalmers University, — *Master of Science*
September 2018 - October 2020 — **Grade: Summa Cum Laude**

- Masters in Nanoscience specializing in Quantum Computing
- **Skills Acquired:** Critical reasoning, Quantum information, Tensor Networks, Formal scientific communication, Numerical optimization.

IIT Guwahati, — *Bachelor of Technology*
August 2013 - May 2017 — **Grade: 8.02/10**

- Major: Electronics and Electrical Engineering, Minor: Engineering Physics
- **Skills Acquired:** Linear Algebra, Quantum Mechanics, Molecular modeling, Density Functional Theory, Computer programming.

TECHNICAL SKILLS

Advanced: Quantum Information Theory, Tensor Networks, DMRG, Matrix Product States, Variational Algorithms, Numerical Modelling, Python, MATLAB, Julia.

Intermediate: Condensed Matter Physics, Density Functional Theory.

Comfortable: Machine Learning, Qiskit.

CERTIFICATIONS

IBM Quantum Challenge

Qiskit Global Summer School 2022 - Quantum Excellence

RELEVANT COURSES

Theory of Quantum Information, Advanced Quantum Algorithms, Condensed Matter Physics, Superconductivity, Quantum Optics, Machine Learning, Linear Algebra.

AWARDS and ACCOMPLISHMENTS

Erasmus Category A full Scholarship 2018 - 2020.

All India Rank of 1893 among 1.5+ million students in the IIT admissions entrance exam 2013.