Sriram Gopalakrishnan

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Education

University of Waterloo – M.Sc. in Physics 2023
Indian Institute of Technology (IIT) Madras – B.Tech. in Engineering Physics (rank: 4/28) 2020

Skills

Languages: Python, C++, MATLAB, LaTeX, Markdown, English, Hindi, Tamil
Electrical Simulation: COMSOL RF Module, AWR Microwave Office, LTSpice
Software Development: NumPy, SciPy, Matplotlib
Beginner Proficiency: PyTorch, XGBoost, Scikit-Learn, CUDA, Docker

Experience

Independent Learning – Waterloo, Canada 2024

- Wrote 20+ blog posts related to machine learning, distributed computing, and databases
- Completed a certification on generative AI with LLMs by AWS and DeepLearning.AI: verification
- Teaching a course on quantum algorithms as part of my volunteering for QIndia

Resident Ph.D. Student, Perimeter Institute for Theoretical Physics – Waterloo, Canada 2021 – 2023

- Demonstrated that the spatial energy distribution as a function of temperature in an equilibrium quantum system can be simulated as an initial value problem: technical report [repository]

Graduate Teaching Assistant, University of Waterloo – Waterloo, Canada 2022 – 2023

- Led tutorials, led laboratory demonstrations, held office hours, set problems, graded, and proctored for 4 large undergraduate Physics and ECE classes (PHYS111L, ECE106, PHYS175, PHYS359)
- Received exceedingly positive feedback from both students and professors: lab feedback

Graduate Research Assistant, Institute for Quantum Computing – Waterloo, Canada 2020 – 2021

- Analyzed and simulated novel superconducting circuits as candidate quantum memristors - a hypothesized fundamental circuit element whose current-voltage characteristic exhibits hysteresis (memory effect)

Research Intern, Tata Institute of Fundamental Research – Mumbai, India 2019

- Optimized the design of a novel ring-resonator architecture for coupling superconducting qubits
- Received a best project award; publication in Physical Review Applied with coverage in Nature

Research Intern, Homi Bhabha Center for Science Education – Mumbai, India 2017 – 2018

- Modeled and simulated the energy levels of a 2D quantum dot in a variable magnetic field [repository]
- Found agreement with past experiments; first-authored publication in Superlattices and Microstructures

Bachelor's Thesis Project, IIT Madras – Chennai, India 2019 – 2020

- Formulated and developed in C++ a vector-based 3D Finite Element Method for electromagnetic scattering
- Designed for applications in microwave remote sensing: documentation, thesis [repository]

Synchronized Light and Sound System, IIT Madras – Chennai, India 2018

- Built a synchronized light and sound system in a semester-long course project: video
- It transduces kilohertz waveforms into blue light and sound with frequency-dependent intensities

Volunteering

Steering Committee Member, QIndia – Global 2021-Present
General Executive, UWaterloo Table Tennis Club – Waterloo, Canada 2022
Department Legislator Physics, IIT Madras – Chennai, India 2019-2020