Stavros Efthymiou

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Projects

- Core developer of *Qibolab* for superconducting qubit control.
  Skills: Python, qm-qua, QICK, HTML (*Quantum 8, 1247 (2024)*)
  - Designed software abstractions for qubit control using RF signal generators.
  - Developed driver for superconducting qubit control using *Quantum Machines* instruments.
  - Developed reporting tools and routines for qubit calibration and characterization. (*arXiv:2303.10397*)
  - Performed benchmarks comparing different commercial electronics.
  - Worked alongside a team of lab engineers.
- Core developer of *Qibo*: a Python library for quantum simulation and hardware control.
  Skills: NumPy, Numba, CuPy, TensorFlow, C++, CUDA (*Quantum Sci. Technol. 7 015018*)
  - Contributed more than 80% of the code and reviewed most external contributions.
  - Performed benchmarks against other quantum libraries (Qiskit, Qulacs, qsimcirq, etc.)
  and demonstrated state-of-the-art performance. (*Quantum 6, 814 (2022)*)
  - Collaborated with the team of quantum algorithms.
- Contributed to *google/TensorNetwork*. Skills: numpy, TensorFlow (*arXiv:1906.06329*)
- Super-resolution of the Ising model using convolutional neural networks.
  Skills: TensorFlow, Keras (*Phys.Rev.B 99, 075113*)
  - Used neural networks to increase the lattice size of the system's spin configurations up to 5x.

Skills

Software	Debugging, Unit testing, Code review, Benchmarking, Continuous integration, Python, git, Bash, HTML, Linux, SSH, GitHub workflows
Python	NumPy, pytest, Pylint, TensorFlow, numba, Cupy, SciPy, Matplotlib, Pandas, Flask, Plotly, requests, BeautifulSoup, notebook, Qiskit
Science	Quantum circuit simulation, Superconducting qubit control and characterization, Variational quantum algorithms, Monte Carlo methods, Tensor networks, Neural networks

Employment History

2020 – · · · · **Software Developer,** Technology Innovation Institute, Abu Dhabi, UAE
Quantum Middleware group, Quantum Resarch Centre.

2019 – 2019 **Quantum Resident,** Google X, the moonshot factory, Mountain View, CA, USA
3-month internship.

2018 – 2019 **Doctoral Student,** Max-Planck-Institute of Quantum Optics, Munich, Germany
Theory group, PhD was not completed.

Education

2017 – 2018 **M.Sc. in Physics, University of Waterloo**, Waterloo, ON, Canada
Perimeter Scholars International (PSI) at Perimeter Institute for Theoretical Physics

2013 – 2017 **B.Sc. in Physics, University of Athens**, Athens, Greece
Final grade: 9.68 / 10.00 (second in my class)

Awards and Achievements

2019 **Google Peer Bonus certificate**, during my internship at Google X.

2017 **Scholarship**, 45,000 CAD to participate at Perimeter Institute MSc program.

2013 **Scholarship**, 1,000 EUR prize in *"Great Moment for Education"* event by Eurobank S.A.

Bronze medal, 43rd International Physics Olympiad for high school students.