John Long

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Employment

QuEra Computing Inc. **January 2026 - Present**
Scientific Software Engineer *Boston, Massachusetts*

QuEra Computing Inc. **August 2022 – January 2026**
Scientific Software Developer *Boston, Massachusetts*

- Engineered embedded Domain Specific Languages (eDSLs) and compiler infrastructure for error-corrected neutral atom quantum computation
- Enhanced analog Hamiltonian simulation with custom multithreading and ODE-solving packages as well as enabling direct-to-QPU execution
- Installed sensors and programmed data collection for quantum processing unit telemetry
- Formulated educational materials for neutral atom quantum computing

If and Only If (Iff) Technologies **October 2021 – June 2022**
Quantum Software Engineer *Davis, California*

- Investigated Bose-Hubbard Hamiltonian simulations for Quantum Computers
- Presented on VQE and GBS at the PERF (Petroleum Environmental Research Forum) Spring 2022 meeting

If and Only If (Iff) Technologies **June – September 2021**
Quantum Software Engineering Intern *Davis, California*

- Built custom job submission system for Xanadu's X8 photonic chip
- Created QUBO generators for quantum annealers on the graph and subgraph isomorphism problem based on Calude et al.'s and Hua's algorithms
- Programmed Boson sampling utility library for interferometer submatrix generation and output probability calculation

General Dynamics Mission Systems (GDMS) **July – September 2019**
Software Engineering Intern *San Jose, California*

- Architected module with unit tests for internal SDR platform enabling remote hardware configuration in Python
- Presented discrepancies identified in algorithms on hardware to team of 10+ engineers
- Formulated tools for HDLC frame analysis, generation, and bit stuffing in Python/C

Intel Corporation **June – September 2018**
Software Engineering Intern *Folsom, California*

- Reduced errors and safety vulnerabilities in network deployment by creating the Network Configuration Generator (NCG) Application
- Improved NCG extensibility by leveraging Hy and Selenium to create a debugging suite
- Gained hands-on experience with Cisco routing hardware and protocols

Skills

Languages: Python, Julia, C, C++
Developer Tools: Kubernetes, Git, Unix/Linux,
Technologies/Frameworks: Bloqade, Kirin, Cirq, Stim, Qiskit, Amazon Braket, NetworkX, QuTiP, numpy, Cthulhu.jl, Strawberry Fields, DWave Ocean
Interpersonal Skills: Public Speaking, Mentoring, Team Leadership

Education

University of California, Davis **Sep. 2018 – June 2022**
Bachelor's Degree in Computer Science and Engineering (CSE) *Davis, California*

Relevant Coursework

- Quantum Information Technologies
- Modern Physics
- Linear Algebra
- Computer Architecture
- Machine Learning
- Data Structures and Algorithms
- OOP with C/C++

Enrichment

Quantum Computing at Davis (QCaD) **October 2019 – May 2022**
Workshop Director & Quantum Software Engineer

- Pioneered curriculum for Quantum Computing at the collegiate level
- Hosted physical and remote workshops for 15+ students on Quantum Computing
- Investigated qubit topologies for molecular simulations on quantum computers