Peyton D. Murray, Ph. D.

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Skills Open-Source Leadership, Scientific Computing, Data Visualization, Full-Stack Development

Languages Python, Go, C/C++, Rust, Typescript

Frameworks & Tools CI/CD (GitHub Actions), FastAPI, Django, React, PostgreSQL, Pytest, Python scientific ecosystem, Meson

Experience

OpenTeams (formerly Quansight) *Senior Software Engineer* May 2021 - Present

- Led design and delivery for open source contracts as tech lead for teams of 5-10 engineers on contracts as large as ~$1M, providing open-source consulting services for foundational packages in the Python scientific ecosystem. Delivered all contracts on schedule and within budget.
- Mentored and advocated for a global team of junior engineers; managed multiple open-source contracts simultaneously.
- As an individual contributor I developed bug fixes, features, accessibility enhancements, performance optimizations, tests, improved observability, CI/CD, and project maintenance for `jupyter`, `scipy`, `numpy`, `conda`, `ray`, `tensorflow`, and many smaller projects used by millions of Python developers.
- Refactored legacy NumPy C code to take advantage of modern C++ features, avoiding the need for arcane preprocessor macros and the legacy template generation system for UTF-8 string arrays.
- Reduced `ray`'s CI documentation build time (~1hr) by 50%; automated building, linting, publishing, and testing of the `tensorflow` ecosystem with ~40 CI/CD workflows across multiple projects.

Voltaiq *Software Engineer* Oct 2019 - May 2021

- Developed, deployed, maintained, and supported production deployments for a SAAS data analytics platform for the world's largest battery manufacturers and consumers.
- Built REST APIs (Python, Django, PostgreSQL) and React dashboards with Plotly.js for data visualization.

Tampere University *Postdoctoral Scholar* Jan 2019 - Aug 2019

- Developed 3D voronoi tessellation and performance improvements for an open-source magnetics simulation engine using Go and CUDA C, improving materials research for thousands of top magnetics scientists.
- Scaled simulations by automating configuration and parallelizing across a GPU cluster using SLURM.

UC Davis Department of Physics *Graduate Student Researcher* Aug 2012 - Dec 2018

- Developed open source Python tools for analyzing and plotting magnetic measurements and MCMC sample analysis.
- Implemented a Savitzky-Golay filter to cut processing times for magnetic measurement data from 15 minutes to <1 second.

Lawrence Berkeley National Laboratory *Junior Specialist* May 2011 - May 2012

- Developed control software (C++ and Qt) for automated circuit testing. Hardware tested with this system was deployed as part of the Insertable B-Layer system at the Large Hadron Collider in 2014, enabling continued studies of the Higgs boson.

Education

University of California, Davis: M.S. & Ph.D. Physics 2012 - 2018
St Mary's College of California: B.S. Physics, Minor: Mathematics 2007 - 2011

Teaching

Teaching Assistant, **Physics Department, University of California, Davis** 2012 - 2016
Student Tutor and Live-In Mentor, **Dept. of Physics, St Mary's College of California** 2010 - 2011

Awards 3rd Place Winner, 2020 John D. Hunter Excellence in Plotting Contest. Entry (video), Source repository

Publications, selected conferences, and laboratory skills are listed on the extended CV on my website.