Peyton D. Murray

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Education

University of California, Davis (2012 - 2018)
- Ph. D. Physics (Dec 2018)
- M. S. Physics (Dec 2013)

St Mary's College of California (2007 - 2011)
- B. S. Physics, Minor: Mathematics

Computing

Python (proficient), C/C++ (intermediate), Go (intermediate), Javascript (intermediate), Rust (intermediate). Python scientific/data vis stack (contributor to `scipy`, `numpy`, `jupyter`, `conda`, ...). Dashboarding with `panel`, `bokeh`, `plotly`. Web development with FastAPI, Django/Sqlalchemy ORMs, frontend experience with JS/TS, React. Testing with `pytest`, `hypothesis`. Git for version control.

Skills

Agile Development, Automated Testing, Simulations, Continuous Integration, Data Analysis, Statistics, Visualization, Linux, Python Data & Visualization Ecosystem (`numpy`, `scipy`, `pandas`, `jupyterlab`, `matplotlib`, ...) including coding at C/Python and Rust/Python interfaces; Bayesian parameter estimation, HPC (`slurm`), Distributed Computing, VTK.

Experience

Quansight · Arcata, CA *Senior Software Engineer* May 2021 - Present

- As part of Quansight's consulting branch, delivered custom-built solutions to meet a wide range of customer needs. Much of this work consisted of open source contributions to upstream Python packages in the scientific Python ecosystem - see my GitHub profile for examples of my work. In addition to being technical lead for numerous projects, I also acted as a personnel manager for a team of Quansight developers from around the globe.

Voltaiq · Berkeley, CA *Software Engineer* Oct 2019 - May 2021

- Developed and deployed bespoke production-quality data analysis and visualization tools to provide quantitative insight into battery performance for some of the world's largest battery manufacturers using Django (with Django REST Framework), Plotly.js, and React.

Tampere University · Finland *Postdoctoral Scholar* Jan 2019 - Aug 2019

- Simulated nanoscale magnetic materials on the CSC's Taito-GPU supercluster using a combination of open source software and in-house code (Go, CUDA, and Python). Numerical calculations of domain wall motion were compared to an analytic model [Skaugen 2019].

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

- Developed PyFORC, a Python-based suite of open source tools for analyzing and visualizing magnetic measurements using the First-Order Reversal-Curves (FORC) technique.
- Streamlined the Liu group's material analysis pipeline by developing tarmac, a Python library for quickly visualizing Markov-chain monte carlo (MCMC) samples. This library makes it simple to identify correlations between parameters in a statistical model and evaluate convergence during fitting.
- Fabricated and characterized a wide range of nanoscale magnetic materials, including nanoparticles, thin films, single crystals, and patterned nanostructures using a variety of cutting-edge techniques. Programmed data acquisition and instrument control software for crucial laboratory equipment.

Lawrence Berkeley National Laboratory · Berkeley, CA *Junior Specialist* May 2011 - May 2012

- Created control software (C++, with a Qt-based GUI) 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.

St. Mary's College of California · Moraga, CA *Research Assistant* Sep 2010 - May 2011

- Classified astronomical data from the Arecibo Observatory as part of the ALFALFA Collaboration.

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

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