Peyton D. Murray

Tel: +1 408 761 9078 peytondmurray.github.io peynmurray@gmail.com

Education

University of California, Davis 2012 – 2018
Ph. D. Physics: Dec 2018
M. S. Physics: Dec 2013

Saint Mary's College of California, Moraga 2007 – 2011
B. S. Physics, Minor: Mathematics, *summa cum laude* (GPA: 3.873)

Computing

Python (proficient), C++ (intermediate), Go (intermediate), Bash (intermediate), CUDA (intermediate), Git (proficient)

Skills

Simulations, Data Analysis, Statistics, Data Visualization, Linux, Python Data & Visualization Ecosystem (numpy, scipy, pandas, dask, matplotlib, ...), HPC, Distributed Computing, VTK, Jekyll.

Research & Experience

Computational Physics Laboratory, Tampere University, Finland Jan 2019 – Present
Postdoctoral Researcher

- Simulated nanoscale magnetic materials using a combination of open source software and in-house code (Go, CUDA, and Python) on GPU cluster. Numerical calculations of domain wall motion were compared to an analytic model [4].

Department of Physics, University of California, Davis 2012 – 2018
Graduate Student Researcher

- 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 laboratory equipment, including sputter-deposition power supplies and multimeters.
- Developed PyFORC, a suite of open source tools for analyzing and visualizing magnetic measurements using the First-Order Reversal-Curves (FORC) technique (Python). Time required to go from raw data to publication quality plot was reduced by a factor of ~ 10 compared to previous software.

Physics Division, Lawrence Berkeley National Laboratory, Berkeley, CA 2011 – 2012
Junior Specialist, ATLAS Experiment

- Tested prototype next-generation hardware developed for tracking the trajectories of charged particles at the Large Hadron Collider. Developed system control GUI and backend for an integrated circuit tester (C++ and Qt; version control with SVN). These tools allowed for automated testing of hundreds of chips (entire wafers) at a time, greatly increasing throughput. Chips which passed tests were installed as part of the Insertable B-Layer system at the LHC in 2014, enabling continued studies of the Higgs boson.

Physics Department, Saint Mary's College of California, Moraga 2010 – 2011
Research Assistant, ALFALFA Collaboration
Advisor: Ron Olowin

- Classified galactic and extragalactic astronomical observations as part of the Arecibo Legacy Fast-ALFA (ALFALFA) project, an international collaboration of astronomers based at the Arecibo Radio Observatory in Puerto Rico.

Teaching

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

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