Peyton D. Murray











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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

${\bf Computational\ Physics\ Laboratory,\ Tampere\ University},\ {\bf Finland}$

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

Student Tutor and Live-In Mentor, Physics Dept., St. Mary's College of California

2012 - 2016
2010 - 2011

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