CARL DAWSON

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SUMMARY

I am an early-career scientist/engineer working to transition from academic physics research to a computer science related career. I am looking for opportunities to gain experience in a professional software development setting, and I am open to positions at any level, especially those that take advantage of my background in math, data analysis, and scientific methodologies.

SKILLS OVERVIEW

- Python 2.7, 3.x
- SciPy, NumPy, Matplotlib, Pandas
- Qt4, Qt5, PyQt, Dash, Flask
- C++
- MATLAB (basic)
- C#/WPF/.NET (basic)
- Scientific Data Acquisition and Analysis
- Experimental Design and Execution
- Version Control (git)

PROFESSIONAL EXPERIENCE

STANFORD UNIVERSITY – PHYSICAL SCIENCE RESEARCH PROFESSIONAL

October 2017 – Present

- Developed software applications for controlling adiabatic demagnetization refrigerators (Python, Qt5)
- Developed an automated system for high-throughput screening of SQUID multiplexing chips (Python)
    - Throughput increased by 20x
    - Enabled previously impossible experiments and deep insight into device physics
- Building a Python/Dash/JavaScript web app for interactive dark matter exclusion plots. Will be available for community use.
- Built a small C#/WPF application for controlling custom electronics via the MCP2221 USB→i^2c chip
- Contributed to the *Dark Matter Radio* data processing pipeline (Python)
    - Improved performance by integrating fast algorithms and parallel processing
    - Statistical analysis of terabytes of incoming time-stream data
    - Built Qt5 application to streamline rapid experimentation

STANFORD UNIVERSITY – RESEARCH ASSISTANT

June 2016 – October 2017

- Assisted with experimental procedures
- Performed laboratory organization and maintenance duties
- Self-taught Python and began work on a library for interfacing with standard lab equipment

EDUCATION

SANTA CLARA UNIVERSITY

B.S. Physics – June 2016

Coursework focused on math (calculus, differential equations, linear algebra), physics (statistical mechanics, thermodynamics, E&M, etc.), first-principles problem solving, and numerical methods.

OTHER PROFESSIONAL DEVELOPMENT AND COURSEWORK

Coursera, Udacity

Introduction to Machine Learning, Reinforcement Learning, Intro to Hadoop and MapReduce, Mathematics for Machine Learning: Multivariate Calculus, Introduction to Embedded Systems Software and Development Environments,

Foothilll College

Completed coursework in C++ (software design, advanced data structures and algorithms), and AWS

OTHER INTERESTS

- Mountain/Road Biking, Backpacking
- Electronics – Specifically Vintage/DIY Audio
- ProjectEuler.net
- Open Source Contribution
  i.e. https://github.com/DistrictDataLabs/yellowbrick
- Music (I studied classical voice for a time in college)