Emily Quinn Finney

Data/Software Development Experience

2017   **Participant**   New York, NY
Recurse Center
- Accepted to a three-month self-directed program for software developers.
- Built an asynchronous breadth-first-search web crawler in Python using the asyncio and Beautiful Soup packages.
- Implemented a content-based recommender system using data obtained from Charity Navigator.
- Wrote a technical blog to solidify my understanding of these projects.

2015-2017   **Graduate Research Associate**   Davis, CA
University of California, Davis
- Trained high-dimensional models of galaxy cluster structure using MCMC and gradient descent algorithms.
- Built a data pipeline for analyses using tools from the SciPy stack.
- Refactored image smoothing code, leading to 100x speedup.
- Wrote a peer-reviewed journal article detailing results.

2013   **Undergraduate Senior Thesis**   Claremont, CA
Scripps College
- Implemented Bayesian methods to improve models of galaxy cluster mergers.
- Constrained galaxy cluster collision parameters by 70-85%.
- Visualized data and communicated analysis and results in a paper.
- Selected to present research at Scripps College Capstone Day.

2012, 2013   **Undergraduate Research Internships**   Davis, CA; La Serena, Chile
University of California, Davis; Cerro Tololo Inter-American Observatory
- Classified spectral data and fit lines to redshifts to improve detection of high-mass galaxy clusters.
- Cleaned gigabytes of astronomical data using bash scripting.
- Conducted hypothesis testing on a set of galaxy ellipticity data.

Teaching Experience

2017   **Tutorial Speaker, Teen Track**   Davis, CA
SciPy 2017 Conference
- Led 22 students ages 12-18 in an exploration of the SciPy stack.
- Created a set of interactive Jupyter notebooks to facilitate students' learning.

2017   **Elementary Math/Science Teacher**   Davis, CA
Peregrine School
- Managed a classroom of 20 students ages 8-12.
- Designed and implemented project-based lesson plans.

Education

2014–2017   **Master's of Science, Physics**   Davis, CA
University of California, Davis

2010–2014   **Bachelor's of Arts, Physics**   Claremont, CA
Scripps College

Other Skills and Interests

Professional   Machine learning, tidy data, image analysis, data-driven education.
Personal   Hiking, child development, spiders, theology, singing.

Software

Python
NumPy
SciPy
Pandas
matplotlib
Unix/Linux
bash scripting
Git
Software Design
OOP
Testing frameworks
C data types
R
tidyverse enthusiast
Other Languages
Java
MATLAB
SQL
LaTeX

Practical Statistics

Bayesian Methods
Bayes' Theorem
MCMC
Statistical Inference
Random variables
Hypothesis testing
Regression
Experimental design
Machine Learning
Gradient descent
Clustering algorithms
Mathematics
Linear algebra
Multivariate calculus

Photo

Contact

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