Elijah Z. Bernstein-Cooper

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Career Objective

Self-driven astrophysicist with strong background in statistical analysis and code development seeking to transition to data science career.

Technical Skills

Languages: > 10,000 lines: Python
> 1,000 lines: Matlab
Working knowledge: Java, HTML, CSS, R

Software: Git (https://github.com/ezbc), Markdown, Jekyll, Sphinx, UNIX, Travis-CI, Debian/Ubuntu, OSX

Techniques: Data visualization, uncertainty analysis, predictive modeling, pattern recognition, multi-processing, machine learning, front-end web development, unit+integrated testing

Projects

Structure Identification in Space Aug. 2013 — present

- Employed advanced image-analysis techniques such as Fourier analysis to identify structures in multi-dimensional parameter space.
- Quantified uncertainty of models by applying Bayesian methods such as Monte Carlo Markov Chains and Maximum Likelihood Estimation.
- Collaborated with team of researchers internationally.
- Published Python module to reproject large non-standard data into accessible format for astrophysicists.

Air B&B User Destination Prediction Jan. 2015

- Predicted Air B&B user destinations in a Kaggle competition.
- Applied neural-network regression on categorical and numerical observations.
- Implemented cross-validation on training data to develop most general model.

Contributed to Open-Source Astro Library Fall 2015

- Expanded bootstrapping capabilities of statistical package in `astropy`.

Education

Masters in Astrophysics, 3.5 GPA — December 2015
University of Wisconsin, Madison

B.A. Physics with an Astronomy Emphasis, 3.5 GPA — May 2013
Macalester College

Relevant Coursework

- Object-Oriented Programming
- Theory & Application of Pattern Recognition
- Applied Categorical Data Analysis
- Estimations of Functions from Data
- Intro to Scientific Programming
- Statistics for Astronomers
- Linear Algebra
- Differential Equations
- Multivariable Calculus

Communication

Public Outreach 2014-2015

- Conveyed scientific concepts to public in astronomy presentations at state parks.
- Motivated audience to participate and ask questions about unfamiliar subject.