Anna Kwa

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Summary

Physics Ph.D. candidate at the University of California, Irvine (graduating within the upcoming academic year) looking to transfer my skills to a data science job. Thesis research in theoretical astro-particle physics spans a wide variety of projects related to astrophysical signatures and constraints for various models of particle dark matter. Adept at both written and verbal communication of technical topics to a broad range of audiences. Currently am most comfortable when working in Python, but eager to pick up and learn other tools as needed.

Skills

Software & Programming	Python, Git, Unix OS, Bash, LaTeX
Statistics & Data Analysis	Data cleaning and reduction, model construction, MCMC parameter estimation, time series, principal component analysis, natural language processing
Machine Learning	Linear regression, classification/logistic regression

Relevant Experience

Theoretical astroparticle research

Dept. of Physics & Astronomy, UC Irvine *Jun. 2014 - 2018*

- Maximum likelihood parameter estimation with MINUIT: modeling astrophysical and (potential) dark matter emission in gamma-ray observations
- MCMC parameter estimation: Are the dynamics of stars and gas in a large ensemble of galaxies consistent with predictions from self-interacting dark matter models?
- Written and oral communication of results to a broad range of audiences, multiple invited seminar talks
- Full list of publications available at `http://inspirehep.net/author/profile/A.Kwa.1`

Data Science Certificate Program

UCI Data Science Initiative *2017 - 2018*

- Certificate earned through attending workshops in R, Python, predictive modeling, and advanced topics
- Teaching assistant for NASA Data Intensive Research and Education Center for STEM (DIRECT-STEM) undergraduate workshop in Python predictive modeling

Climate Science Hackathon, Winning Team

UCI Data Science Initiative *Apr. 29 - 30, 2017*

- Built a PyQT GUI for dynamic visualization of changing Arctic sea ice concentrations over time in user-selected regions of interest
- Personal contribution: code enabling data visualization and fast loading of large spatial-temporal dataset

Seminar class: Statistics and Machine Learning in Astronomy
Dept. of Physics & Astronomy, UC Irvine *2016*

- Informal seminar class taught by its participants; covered common topics in statistics and data science and their applications in astrophysics
- Taught sections on principal components analysis (PCA) and time series analysis. Demonstration code for classifying stars through PCA of their chemical abundances and exoplanet detection using time series data is available on my personal website

Education

Ph.D., Physics (expected in 2017 - 2018 academic year) — *Irvine, CA*
University of California, Irvine — *Sept. 2012 - 2018*

Thesis: Astrophysical Tests of Dark Matter Particle Theories
Advisor: Prof. Manoj Kaplinghat

B.S., Physics and Astronomy, *summa cum laude* — *Columbus, OH*
The Ohio State University — *Sept. 2007 - Jun. 2011*

Honors & Awards

2017 - 2018	UC President's Dissertation Year Fellowship
2016 - 2017	School of Physical Sciences Faculty Endowed Fellowship
2014 - 2017	National Science Foundation Graduate Research Program Fellow
2012 - 2014	UC Irvine Chancellor's Fellow