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EDUCATION

Carnegie Mellon University, Pittsburgh, PA

August 2021

Ph.D. in Physics. Recipient of CMU presidential fellowship.

Brown University, Providence, RI.

May 2015

B.Sc. in Physics. Graduated Magna Cum Laude, Phi Beta Kappa, Sigma Chi

Recipient of NASA Rhode Island Space Grant Research Award and Brown Undergraduate Teaching and Research Award.

RESEARCH EXPERIENCE

Physics Department, Carnegie Mellon University

Graduate Research Assistant

Binary Stars Project:

2019-present

- Simulated millions of mock data points with accurate treatment of observational uncertainties
- Combined disparate data sources into a single data product
- Trained Neural Networks and Random Forest machine learning algorithms

Emergent Gravity Project:

2018-present

- Transformed theoretical models into testable predictions
- Created methods for automatic rejection of anomalous data points
- Determined statistical significance of results

Distribution of Stars Project:

2016-2019

- Used Maximum Likelihood and Markov chain Monte Carlo methods to fit models to data
- Created efficient models to aid supercomputing
- Lead author responsible for writing text and constructing plots for peer-reviewed first-author papers
- Presented research results at academic conferences and public lectures

TEACHING EXPERIENCE

Physics Department, Carnegie Mellon University

2015-2021

Teaching Assistant

- Led discussion sessions for introductory, senior-level and non-major physics courses
- Led laboratory sessions for introductory and senior-level laboratory classes.
- Selected by physics department to train new teaching assistants

Carnegie Science Center, Pittsburgh, PA

2016-present

Expert Volunteer

- Performed visitor Q&A sessions, planetarium shows, and educational demonstrations during public telescope events
- Presented lectures for adults and school programming

SKILLS and INTERESTS

Programming: Mathematical applications of Python, Fortran, and Mathematica.

Software: Experienced with Linux, Mac, and Windows operating systems

Interests: Cellist, performing with music graduate students at CMU school of music (3 years); house team member at Steel City Improv Theater (3 years); Level 2 dog handler at Animal Friends Shelter (1 year).

PUBLICATIONS

Stellar Density Profiles of Dwarf Spheroidal Galaxies. Presented at AAS 235, Jan 5, 2020. doi.org/10.3847/1538-4357/ab7459

Proposed low-energy absolute calibration of nuclear recoils in a dual-phase noble element TPC using D-D neutron scattering kinematics. doi.org/10.1016/j.nima.2017.01.053