Adam Sutherland

Astrophysicist

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Technical Skills

Overview

Programming

Intro ⟶ Expert

Python • Mathematica • pandas

Fortran • LaTeX

C • Julia • IDL

Skills

- Time Series Analysis
- Large Data Sets
- High Performance Computing
- Data Visualization: interactive plots, matplotlib, Bokeh, Plot.ly
- Quantitative Analysis
- Numerical & Analytical Mathematics
- Problem Solving
- Collaborative Coding: github
- Independent Work
- Simplifying High Level Concepts

Experience

Aug 2016 - Jan 2020 | **Graduate Research Assistant** — University of Arizona

- Studying the dynamics of planets in mean motion resonances around binary stars. I identified a number of instabilities for circumbinary planets and determined how planetary migration can contribute to these instabilities.
- Developed analytic theory of mean motion resonances.
- Ran numerical simulations in `C` and analyzed the results with `Python` and `pandas`, comparing to the analytic theory.

May 2015 - June 2016 | **Senior Honors Thesis Research Asst.** University of Chicago

- Investigated the properties of optical fibers for the development of the MAROON-X high precision radial velocity spectrograph, an instrument for discovering planets around other stars.
- Built optical testing station and developed methods for characterizing the effectiveness of optical fibers of different geometries.
- Project involved image processing, `PIL`, `OpenCV`, `SciPy`, and correlating input and output images using `pandas`.

Oct 2013 - Apr 2015 | **Undergraduate Research Assistant** University of Chicago

- Researched the stability of circumbinary planets and determined the rates at which unstable planets were ejected or collided with one of the parent stars.
- Ran extensive numerical simulations of circumbinary planets in `Fortran` and analyzed the results in `IDL`.
- Published results were featured in AAS NOVA and SPACE.COM.

Education

Master of Science: Astronomy & Astrophysics
University of Arizona
2016 - 2018 | Tucson, AZ

Bachelor of Arts w/ Honors, Physics, Geophysical Sciences
Specialization: Astrophysics
University of Chicago
2012 - 2016 | Chicago, IL

Dean's List: First, Second, Third, and Fourth Year
General Honors with Bachelor's Degree

Impact

- 4 publications with a combined 38 citations
- 2 popular science articles about research
- 4 conferences attended

See www.suth.space/portfolio/ for a research project example.