

Christopher R. Seay

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Education

Universiteit Leiden

M.Sc. in Astronomy GPA: 7.42/10 (3.6/4.0)

1st year thesis: *Exploring the Possibility of Oscillations in Extrasolar Giant Planets*

Master's thesis: *Finding Extrasolar Companions Around Sun-like Stars*

Leiden, Netherlands

Conferred July 2020

University of California, Santa Cruz

B.Sc. in Physics (Astrophysics)

Thesis: *Modeling Brown Dwarf Atmospheres*

Santa Cruz, CA, USA

Conferred June 2017

Experience

Junior Specialist (Astrophysics)

at University of California, Santa Cruz

Santa Cruz, CA

July 2016 – August 2018

- Ran and maintained a dataset of 10,000+ model brown dwarf atmospheres among 10+ collaborators and assessed model quality using physical principles to inform further work in astronomy.
- Used data analysis techniques mainly including pandas, numpy, matplotlib, and scipy packages.
- Visualized results with matplotlib and communicated effectively to various audiences.
- Wrote and utilized custom Python scripts on a separate, more independent project to calculate various measured properties of brown dwarfs and hot Jupiters, in addition to scripts that visualize the measured data for analysis. Coordinated with a team of 5+ members to publish results promptly and accurately.

Resident Assistant

at University of California, Santa Cruz

Santa Cruz, CA

August 2015 – June 2017

- Facilitated the social, academic, and personal adjustment of over 70 undergraduate students to the college and greater university community within a team of 20 other coworkers.
- Supported the student community with event planning, “front-line” support, and knowledge of inner workings of the campus.

Skills

Languages and Typesetting: Python, SQL, LaTeX

Data visualization tools: Tableau, TensorFlow, numpy, matplotlib, pandas, scipy, astropy, seaborn, plotly, scikit

Relevant coursework: Advances in Data Mining, Modern Astrostatistics, Computational Physics,

Project Management for Scientists, Academic and Professional Skills, Science and the Public

Office suites: GSuite, Microsoft Office, LibreOffice, iWork

Platforms: GNU/Linux (Arch, Debian/Ubuntu), MacOS, Windows

Projects

Finding Extrasolar Companions Around Sun-like Stars

September 2019 – June 2020

- Project management practiced in working with advisor and other collaborators in delivering publishable results efficiently, accurately, and ahead of schedule.
- Data visualization and analysis practiced in reducing large datasets (11 target stars; coupled archival data and newly observed data taken with different instruments) with PynPoint.
- Interpreted and documented results of reduction with high enough quality for published literature and provided tools for future predictions.

Exploring the Possibility of Oscillations in Extrasolar Giant Planets (EGPs)

September 2018 – July 2019

- Worked independently creating data analysis scripts from scratch on a novel and highly complex sub-field in astronomy.
- Used and synthesized data from several codebases to create 60 planetary interior models.
- Created data visualization scripts from scratch to better comprehend physical characteristics of EGPs.

Advances in Data Mining

September 2018 – October 2018

- Implemented ALS and GRS algorithms to accurately (RMSE of 0.86) predict movie ratings from data set of 1 million ratings.
- Used the PCCA and LogLog algorithms to estimate distinct elements in an unorganized large data stream.

Presentations

- Graduate Seminar, Leiden University (2020): Finding Extrasolar Companions Around Sun-like Stars in Sco-Cen
- American Astronomical Society 221st meeting (2017), Washington DC: Atmospheres of Brown Dwarfs

Honors

- Leiden Excellence Scholarship 2018-2019, 2019-2020
- Dean's Honors Fall/Winter 2014, Fall 2016