Ayla Weitz

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Research Experience

Research Associate October 2022 – June 2023
Lockheed Martin Solar and Astrophysics Laboratory/Bay Area Environmental Research Institute *Palo Alto, CA*

- Working with Dr. Sanjiv Tiwari to analyze the evolution and dynamics of fine-scale solar structures
- Coordinating IRIS, SDO, and Solar Orbiter/EUI observations
- Developing Python software to automatically detect and analyze small-scale bright dots

UAH/NASA MSFC Solar and Heliospheric Physics REU Program June – August 2021
University of Alabama in Huntsville/NASA Marshall Space Flight Center *Huntsville, AL*

- Worked with Dr. David Falconer on characterizing the time evolution of free-energy proxies to forecast west limb flares, coronal mass ejections, and solar energetic particles
- Found and corrected the radial distance dependence of magnetic measures in JSOC deprojected cylindrical magnetograms
- Work is currently being implemented into MagPy, a space weather forecasting software (Python version of MAG4)

Research Apprentice September 2019 – July 2022
Lawrence Berkeley National Laboratory *Berkeley, CA*

- Worked with Dr. Greg Aldering through the Undergraduate Research Apprenticeship Program (URAP) and Berkeley Lab Undergraduate Research (BLUR) program
- Measuring the Hubble Constant with Twin Supernovae
  - Developed software for correcting supernovae spectra so they can be standardized using the Twins Embedding method
- Refining Historical Type Ia Supernovae Coordinates
  - Developed custom Python software for determining Type Ia supernovae coordinates from historical images
  - Checked and refined celestial coordinates for over 700 supernovae

Awards

- George Ellery Hale Graduate Fellowship, 2023
- 1st place in the University of Alabama in Huntsville/NASA Marshall Space Flight Center Research Experience for Undergraduates (REU) Poster Competition, 2021
- URAP Summer Award, 2020

Posters and Research Talks

- **LMSAL IRIS Journal Club Mini Presentation – online**: Solar Orbiter/EUI, IRIS, and SDO Observations of Fine-Scale Bright Dots and its Association with Coronal Plumes
- **Poster Presentation at COSPAR 2022 – Athens, Greece**: Charcterizing the Time Evolution of Free-Energy Proxies to Forecast West Limb Flares, CMEs, and SEPs
- **Poster Presentation at the BLUR Summer 2022 Poster Session – online**: Measuring the Hubble Constant with Twin Supernovae
- **Poster Presentation at AGU Fall 2021 – New Orleans, LA**: Charcterizing the Time Evolution of Free-Energy Proxies to Forecast West Limb Flares, CMEs, and SEPs
- **UAH/NASA MSFC REU Talk – Huntsville, AL**: Presented my work to fellow REU participants and mentors of the program, and was awarded first place for my presentation
- **Astro 198: Introduction to Research Talk – online**: Presented my work on refining Type Ia supernovae coordinates to fellow students and Dr. Mariska Kriek

Teaching

Astronomy C10 Undergraduate Student Instructor Spring 2022
Astronomy C10 — Introduction to Astronomy *Berkeley, CA*

- Instructor for an introductory astronomy course taught by Dr. Alex Filippenko
- Taught 4 discussion sections (∼90 undergraduate students) where I prepared custom lessons and quizzes

Python DeCal Instructor – pythondecal.github.io Spring 2021, Fall 2021, Spring 2022
Astronomy 98 — Introduction to Computational Methods for Astronomers *Berkeley, CA*

- Taught a course geared towards giving physics and astrophysics majors an introduction to Python and helping them develop skills necessary for research
- Our team of 5 undergraduate instructors developed the curriculum, gave the lectures, held office hours, and graded and created the homework assignments

Astro C12 Reader Spring 2021
Astronomy C12 — Introduction to the Planets *Berkeley, CA*

- Graded problem sets and exams for an introductory astronomy course
- Collaborated with professors, graduate student instructors, and fellow readers on rubrics

Technical Skills

Languages: Python, Unix, SQL, JavaScript, HTML
Tools: Jupyter Notebook, GitHub, DS9, JHelioviewer, LaTeX, Microsoft Office

Education

University of Colorado, Boulder August 2023 – present
Astrophysics and Planetary Sciences PhD program

University of California, Berkeley May 2022
B.A. in Astrophysics

Willow Glen High School June 2018
High School Diploma

Extracurriculars

- Volunteer/Service Dog Puppy Raiser for Canine Companions for Independence
- Hiking — Half Dome 2016, El Camino Frances 2022