

# Ayla Weitz

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## RESEARCH EXPERIENCE

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### 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

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- 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

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- **Hinode-16/IRIS-13 Meeting – Niigata, Japan:** Penumbra Fine-Scale Bright Dots as a Precursor to Coronal Plumes? Solar Orbiter/EUI, IRIS, and SDO Observations
- **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:** Characterizing 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:** Characterizing 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

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### **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](https://github.com/pythondecal)**

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

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**Languages:** Python, Unix, SQL, JavaScript, HTML

**Tools:** Jupyter Notebook, GitHub, DS9, JHelioviewer, L<sup>A</sup>T<sub>E</sub>X, Microsoft Office

## EDUCATION

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### **University of Colorado, Boulder**

August 2023 – present

*Astrophysics and Planetary Sciences Ph.D. program*

### **University of California, Berkeley**

May 2022

*B.A. in Astrophysics*

### **Willow Glen High School**

June 2018

*High School Diploma*

## EXTRACURRICULARS

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- Hiking — Half Dome 2016, El Camino Frances 2022, GR11 Transpirenaica 2023