# Ayla Weitz

aylaweitz@berkeley.edu | aylaweitz.github.io (personal website)

## Research Interests

I'm interested space weather forecasting, coronal heating, and Type Ia supernovae. While my research interests range from astrophysical phenomena near and far, my underlying passion lies in working with data and developing software to tackle interesting problems.

## Education

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

## Research Experience

**Research Associate** October 2022 – Present
*Lockheed Martin Solar and Astrophysics Laboratory/Bay Area Environmental Research Institute* *San Jose, CA*

- Working with Dr. Sanjiv Tiwari to analyze the evolution and dynamics of fine-scale solar structures using coordinated IRIS, AIA, HMI, and EUI/SolO data

**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

**Research Apprentice** September 2019 – July 2022
*Lawrence Berkeley National Laboratory — with Dr. Greg Aldering* *Berkeley, CA*

- Determining 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
  - Paper is currently under review

## Awards

- 1st place in the 2021 University of Alabama in Huntsville/NASA Marshall Space Flight Center REU Poster Competition
- Undergraduate Research Apprenticeship Program (URAP) Summer 2020 Award

## Posters and Research Talks

- **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 Berkeley Lab Undergraduate Research (BLUR) Summer 2022 Poster Session**: 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**: 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**: Presented my work on refining Type Ia supernovae coordinates to fellow students and Professor Mariska Kriek

## Teaching

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

- Undergraduate student instructor for an introductory astronomy course taught by Professor 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**: GitHub, Jupyter Notebook, DS9, JHelioviewer, LaTeX, Microsoft Office

## Extracurriculars

- UC Berkeley Undergraduate Astronomy Society
- UC Berkeley Club Lacrosse
- Volunteer/Service Dog Puppy Raiser for Canine Companions for Independence