Berkeley, CA
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# Sophia Risin

Student — Researcher

LinkedIn

**Technical Interests:** Theoretical Cosmology & Astrophysics, Photocenter Astrometry & Photometry, Machine Learning & Simulations
**Intellectual Interests:** Philosophy of Science, Science for Social Good, Poetry.

## Education

**Intended BA, Astrophysics and Philosophy,** University of California: Berkeley **Aug 2022 — May 2026**

## Research Experience

**Undergraduate Research Fellow** **Aug 2022 — Present**
*UC Berkeley Dept. of Astronomy* 5 - 10 hours/week, Berkeley, CA

As a member of Dr. Alex Filippenko's group, I validate supernovae and other transient candidates with Zwicky Transient Facility at Palomar. I also perform original, supervised research in collaboration with other members of the group. I also work with Kishore Prata studying spectral polarization of type Ia supernovae.

**Student Researcher** **Oct 2022 — Present**
*Lawrence Berkeley National Lab - National Energy Research Scientific Computing Center* 5-10 hours/week, Berkeley, CA

I work with both Zarija Lukic and Solène Chabanier on the nyx simulations of lyman alpha emissions. I use stochastic learning to develop models of lyman alpha emissions and their power spectra. These models can be used to simulate large scale structure and are a cheaper alternative to running traditional cosmological models.

**Co-Director** **Nov 2021 — Present**
*Fairborn Institute* 10 - 40 hours/week, Remote

As the co-director of the Fairborn Institute with Dr. Russell Genet, I am responsible for running observing nights, writing papers, guiding students through research, assisting in grant writing, and creating curriculum.

**Undergraduate Researcher** **Aug 2022 — Present**
*Global Supernova Project* 5 hours/week, Remote

I attend bi-weekly meetings discussing various supernovae projects and work on independent research.

**Principle Astronomer** **Sept 2021 — Aug 2022**
*Boyce Astro Robotic Observatory* 30-40 hours/week, Remote

I was responsible for training observers, running observing nights, and teaching students about speckle interferometry. I also assisted in planning and executing public observing nights.

**Beta-Tester** **May 2020 — Dec 2020**
*Jet Propulsion Lab* 10 hours/week, Remote

I beta-tested code for Exoplanet Watch, reduced transits for Qatar-1b, and attended weekly meetings. I also assisted other students in their projects and taught students about exoplanets and the transit detection method.

## Technical Skills

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| **Tools** | Python, LaTeX, Linux, Microsoft Suite, Logic Pro X |
| **Techniques** | Observational Astronomy, Speckle Interferometry, Signal Processing |

## Tutoring and Professional Development

**Mentor** **Dec 2020 — June 2022**
*Mount Sinai Generational Youth Mentorship Program* 5 hours/week, Remote

I mentored and tutored students weekly from underserved communities on zoom in a variety of topics and attended training sessions on how to support students emotional well-being.

**Peer Tutor** **Aug 2020 — May 2022**
*Stanford Online High School* ~5 hours/week, Remote

I met with students and tutored Methodology of Science Biology, History and Philosophy of Science, Advanced Placement US History, sent reports to teachers and attended training sessions.

## Volunteer Work

**Secretary** **Sept 2021 — Present**
*Institute for Student Astronomical Research* 1-2 hours/week, Remote

I attend monthly meetings, guide students through research projects, and maintain records.

**Logistics Director** **Sept 2016 — June 2022**
*STEAMpark Teen Board* 1-2 hours/week, Remote

I attended weekly executive board meetings, helped with the creation of programs and initiatives, and managed records for service hours.

**Physics Department Head** **Sept 2020 — Jun 2022**
*Beyond the Five* 5 hours/week, Remote

I created curriculum and taught an algebra based physics course and exoplanets course. I also graded papers, managed physics course staff and students, and worked to create community within the program.

## Grants and Awards

**Google Cloud GCP**
I received funding from Google Cloud to work on my own project creating a program that will be able to search through astronomy data to find transients.

## Speaking Engagements

**Little Me Academy Digital Edventures Keynote Speaker** **July 2022**
**Planewave Instruments Educator Workshop** **July 2022**
**Robotic Telescopes Student Research and Education Conference** **June 2022**
**American Astronomical Society 240th Annual Meeting Cubesat Astrometry Workshop** **June 2022**
**Wildwood Institute for STEM Research and Development** **May 2022**
**Quarknet QED Talk** **April 2022**
**PRISSAAP Region X Speaker Talk** **March 2022**
**Cedar Drive Middle School Women in STEM Lunch** **Nov 2021**

## Selected Publications

1. **Risin**, **S.** *et al.* The Position Angle, Separation, and Additional Component of STF 1300. *Journal of Double Star Observations* (2022)
2. **Risin**, **S.** *et al.* Exploring Short Period Red Dwarf Binaries in the Solar Neighborhood Speckle Interferometry and Gaia - IV. *Journal of Double Star Observations* (2022)
3. **Risin**, **S.** *et al.* Observations of Potential Gaia Red Dwarf Binaries in the Solar Neighborhood—III. *Journal of Double Star Observations* (2022)
4. **Altunin**, **I.** *et al.* Comparison of Recent Small Telescope Speckle Interferometry with Gaia and Archived 3.8-Meter UKIRT J-Band Image Astrometry. *Journal of Double Star Observations* (2021)
5. **Marchetti**, **C.** *et al.* Speckle Interferometry of Close Doubles on the Mount Wilson 60" Telescope A Live Virtual Star Party. *Journal of Double Star Observations* (2020)