Junyi Zhao

1780 Broadway street | Ann Arbor MI 48105 | junyzhao@umich.edu

Education

University of Michigan—Ann Arbor | Ann Arbor, MI — Sep 2022 –

- **Majors:** Astronomy & Astrophysics, Earth and Environmental Sciences, Interdisciplinary Physics
- **Minor:** Music, Climate & Space engineering

University of California, Santa Barbara | Santa Barbara, CA — Sep 2021 – Jun 2022

- **Major:** Global studies

Honors & Awards

Summer Undergraduate Research Fellowships (SURF), Caltech — 2025
University Honors, University of Michigan — 2024-2025
James B. Angell Scholar, University of Michigan — 2025

Poster & Science Talks

Undergraduate Research Symposium 2025 | Ann Arbor, MI — May 2025
Searching for protoplanets orbiting MWC 758 using JWST/NIRCam

Undergraduate Research Symposium 2024 | Ann Arbor, MI — May 2024
Identification and Kinematics of OBe stars in the LMC

Astro 101 observation section | Santa Barbara, CA — May 2022
The night sky – Constellation, star,and planets

Research and lab Experience

Constraining Grain-Size-Dependent Dynamics in AU Mic's Debris Disk (Planned) — Jun 2025 – Aug 2025
Caltech, CA | Adviser – Dr.Yinuo Han

- Planned–Perform joint modeling of the vertical structure of AU Mic at Four wavelengths

Searching for protoplanets orbiting MWC 758 using JWST/NIRCam — Jun 2024 –
University of Michigan, MI | Adviser – Prof. Michael Meyer

- Aimed to check for the existence of protoplanet MWC758c using F200w and F430M JWST/NIRCam bands.
- Utilized Angular Differential Imaging (ADI) and Reference star differential imaging (RDI) using Pynpoint.
- Presented research findings at the Astronomy department's Undergraduate Research Symposium 2025. (Research in progress)

Identification and Kinematics of OBe stars in the LMC — Feb 2023 – May 2024
University of Michigan, MI | Adviser – Prof. Sally Oey

- Developed a photometric methodology for the selection of Oe and Be-type stars in the Large Magellanic Cloud.
- Designed and implemented a Python-based star selection algorithm, incorporating Aperture Photometry techniques.
- Analyzed Gaia mission data to accurately calculate the transverse velocities of Oe and Be- type stars within the Large Magellanic Cloud.
- Presented research findings at the Astronomy department's Undergraduate Research Symposium 2024.

Interferometric Data Analysis of Be stars — May – Jul 2024
University of Michigan, MI | Adviser – Prof. John Monnier

- Processed interferometry data of scientific binary systems and Be stars using IDL (Interactive Data Language) to automate data reduction pipelines.

- Gained knowledge of interferometric techniques and their application in astronomical research.

High-Pressure Lab assistant Jun 2024
University of Michigan, MI | Adviser – Prof. Jie (Jacky) Li

- Utilized microscopy techniques to prepare laboratory consumables for high-pressure experimental procedures.
- Trained in laboratory protocols and safety guidelines for high-pressure experiments.

Huairou Sun Observatory observer assistant Jun 2021
Huairou Sun Observatory, Beijing | Adviser – Prof. XingMing Bao

- Assisted on-site professor with sun spots / H-alpha solar image data recording and maintenance of observational logs.
- Gained hands-on experience in the operational procedures and instrumentation of a solar observatory.

Outreach Talks

Mid-Autumn Festival U-M Astronomy Presentations 2024 | Ann Arbor, MI Sep 2024
Chang'e Lunar Exploration program until Chang'e 6

Mid-Autumn Festival U-M Astronomy Presentations 2023 | Ann Arbor, MI Sep 2023
Chang'e Lunar Exploration program until Chang'e 5

Science Communication & Public Outreach

Active member of the University of Michigan Student Astronomical Society (SAS) | Ann Arbor, MI
Guest presenter at the Detroit observatory (SAS) | Ann Arbor, MI
Founder and President of the School Astronomy Club, Beijing No.4 High School | Beijing, China
Active instructor of the School Astronomy Club, Beijing No.4 High School | Beijing, China
Volunteer Planetarium Guide and Presenter at Beijing Planetarium. | Beijing, China
Lead meteor shower observation and photography group on a 3 day trip. | Hebei, China

Astronomy Data Science Skills

Proficient:	Python, Markdown, DS9, Jupyter,
Intermediate:	SQL, MESA-web, Cloud Computing, LaTeX
Familiar:	C++, HTML, Docker, MATLAB
Datasets:	JWST Near Infrared Camera (NIRCam)
	CTIO (Curtis/Schmidt Telescope)
	CHARA (Center for High Angular Resolution Astronomy) Array
Packages:	pandas, numpy, matplotlib, seaborn, scikit-learn, PyTorch, TensorFlow,
	scipy, pynpoint, emcee, applefy, astropy, astroquery