

Yanbo Pan

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RESEARCH INTERESTS

Observational Near-Field Cosmology; Dwarf Galaxies; Stellar Dynamics; Stellar Populations; Large Sky Surveys; Statistical and Computational Applications on Astrophysics

EDUCATION

• University of Virginia <i>PhD in Astronomy</i>	2025 – 2030 (<i>Expected</i>) Charlottesville, VA
• University of Michigan <i>Bachelor of Science: Astronomy & Astrophysics (with High Honors), Statistics, Interdisciplinary Physics</i> ◦ GPA: 3.99/4.00	2022-2025 Ann Arbor, MI
• University of Wisconsin <i>Physics & Astronomy</i> ◦ GPA: 4.00/4.00	2021-2022 Madison, WI

HONORS & AWARDS

1. Provost's Fellowship, University of Virginia (\$32,500)	2025–2030
2. University Graduate Fellowship, Penn State University (Declined)	2025
3. Homer F. Braddock/Nellie H. and Oscar L. Roberts Fellowships, Penn State University (Declined)	2025
4. Jerome and Isabella Karle Physical Sciences Award, University of Michigan (\$2,000)	2025
5. Outstanding Undergraduate Major Award, Department of Statistics, University of Michigan	2025
6. Graduation Speaker, Department of Statistics, University of Michigan	2025
7. Dorrit Hofflein Undergraduate Research Scholarship, Yale University (\$4,600)	2024
8. ERES IX Conference Travel Award, Cornell University (\$500)	2024
9. James B. Angell Scholar, University of Michigan	2023–2025
10. University Honors, University of Michigan	2022–2025
11. Dean's List, University of Wisconsin	2021–2022

PUBLICATIONS

C=CONFERENCE, J=JOURNAL, P=IN PREP, T=THESIS

- [J.1] Fournier-Tondreau, M., Pan, Y., et al. (2025). **Transmission spectroscopy of WASP-52 b with JWST NIRISS: water and helium atmospheric absorption, alongside prominent star-spot crossings.** *MNRAS*.
- [P.1] Pan, Y., et al. (2025). **JWST MEP - A World Under Spotty Starlight: Detection of CO₂ and H₂O in the Hot Saturn WASP-52b with JWST NIRSpec G395H.** (In Prep).

SCIENCE TALKS

AAS 245, National Harbor, MD	January 2025
Exploring the Chemical Recipes of a Hot Jupiter Behind the Shade of Spotty Starlight	
Summer Research Symposium, Yale University, CT	July 2024
Riding Two Dark Horses: A Spectroscopic Study of Ultra-faint Milky Way Satellites	
ERES IX, Cornell University, NY	July 2024
The Effect of Stellar Features on Atmospheric Retrievals of WASP-52b's Transmission Spectrum	
Student Astronomical Society Research Talk, University of Michigan, MI	September 2023
Modelling Binary Orbits in the WIYN Open Cluster Survey - The alternative evolutionary tracks for binary stars	

OUTREACH TALKS

Graduation Remarks, Department of Statistics, University of Michigan, MI	May 2025
From Statistical Toolbox to the Expanding Universe	
Student Astronomical Society Outreach Talk, University of Michigan, MI	April 2025
Dwarf Galaxies: Hidden Gems in Our Cosmic Neighborhood	
Physics 391 Talk, University of Michigan, MI	October 2023
The Missing Satellite Problem	

POSTERS

AAS 244, Madison, WI Modelling Binary Orbits in the WIYN Open Cluster Survey	June 2024
Undergraduate Research Fair , University of Michigan, MI Mining Ultra-Faint Galaxies in the Local Group: Are Missing Satellites All Found?	April 2024
Undergraduate Research Fair , University of Michigan, MI Uncovering Ultra-Faint Galaxies in the Local Group	April 2023

RESEARCH EXPERIENCE

Graduate Research, Astronomy Department University of Virginia, VA <i>Research Assistant (Advisors: Steve Majewski & Nitya Kallivayalil)</i> Chemo-dynamical analysis of resolved stellar populations in Sagittarius Dwarf Galaxy using Gaia EDR3	August 2025 – Present
Undergraduate Research, Astronomy Department University of Michigan, MI <i>Research Assistant (Advisor: Ryan J. MacDonald)</i> Multidimensional atmosphere analysis of WASP-52b using JWST Cycle 2 NIRISS & NIRSpec data	January 2024 – Present
Undergraduate Research, Astronomy Department Yale University, CT <i>Dorrit Hofflein Scholar (Advisor: Marla Geha)</i> A spectroscopic study of two ultra-faint Milky Way satellites' dynamics using Keck DEIMOS spectroscopy	May 2024 – August 2024
Undergraduate Research, Astronomy Department UW-Madison, WI <i>Research Assistant (Advisor: Robert D. Mathieu)</i> Evaluate the potential of theJoker in binary orbit modeling for the WIYN Open Cluster Survey	June 2023 – June 2024
Undergraduate Research, Astronomy Department University of Michigan, MI <i>Research Assistant (Advisor: Eric F. Bell)</i> Mining M31 ultra-faint dwarf satellites in the DECam Local Volume Exploration Survey DR2 footprint	January 2023 – May 2024

ASTRONOMY DATA SCIENCE SKILLS

- **Proficient:** Python, R, Markdown, Jupyter
- **Intermediate:** SQL, MESA-web, Cloud Computing, Unix Shell, LaTeX, WSL
- **Familiar:** C++, HTML, Docker, MATLAB, DS9
- **Datasets:** DECam Local Volume Exploration Survey (DELVE), ESA - Gaia, WIYN Open Cluster Survey (WOCS), JWST Transmission Spectra (NIRISS & NIRSpec), Keck DEIMOS Spectra
- **Packages:** pandas, numpy, matplotlib, seaborn, scikit-learn, PyTorch, TensorFlow, scipy, sqlite3, emcee, pymultinest, pymc3, theJoker, POSEIDON, ezzadova, gala, fitsio, astropy, astroquery

STUDENT MENTORSHIP

James McDowell (Binary orbits modeling; UW-Madison)	2025
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OBSERVING EXPERIENCES

APO 3.5m/DSSI	1 night
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SCIENCE COMMUNICATION & PUBLIC OUTREACH

- Doghouse telescope operator @ UVa McCormick Observatory
Undergraduate mentor of the Student Astronomical Society (SAS) UFD group
Undergraduate co-representative of the Astronomy DEI committee
Guest writer of the Astrobites Undergraduate Research Series
Volunteer tutor @ the Greater University Tutoring Service (GUTS)
Community speaker of the Chinese New Year Show @ the U-M Planetarium and Dome Theater
Scientific blogger @ zhihu.com
Active member of Badger Acts of Kindness
Travel agent summer intern @ China CYTS Tours Holding Co., Ltd

PROFESSIONAL EXPERIENCE

• Member of the Astrobiology Team

Mrover | University of Michigan, MI

September 2022 - May 2023



- Developed chemical tests for life detection and collaborated on implementation for the University Rover Challenge

• Museum Docent

The L.R. Ingersoll Physics Museum | UW-Madison, WI

September 2021 - April 2022



- Facilitated physics demonstrations and conducted educational events during the Wisconsin Science Festival

• Part-time Tutor

The Jingrui Academy of Science | Ningbo, China

June 2021 - August 2022

- Provided academic tutoring in math, physics, and economics to IB students through customized instruction

MISCELLANEOUS

Languages: Chinese, English

Hobby: Distance Running, Swimming, Hiking, Table Tennis, Snow Watching, Elephant Chess