

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

## 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 Hoffleit 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 CO<sub>2</sub> and H<sub>2</sub>O 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

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

## RESEARCH EXPERIENCE

<b>Graduate Research, Astronomy Department   University of Virginia, VA</b> <i>Research Assistant (Advisors: Steve Majewski &amp; Nitya Kallivayalil)</i> Chemo-dynamical analysis of resolved stellar populations in Sagittarius Dwarf Galaxy using Gaia EDR3	August 2025 – Present
<b>Undergraduate Research, Astronomy Department   University of Michigan, MI</b> <i>Research Assistant (Advisor: Ryan J. MacDonald)</i> Multidimensional atmosphere analysis of WASP-52b using JWST Cycle 2 NIRISS & NIRSpec data	January 2024 – Present
<b>Undergraduate Research, Astronomy Department   Yale University, CT</b> <i>Dorrit Hoffleit Scholar (Advisor: Marla Geha)</i> A spectroscopic study of two ultra-faint Milky Way satellites' dynamics using Keck DEIMOS spectroscopy	May 2024 – August 2024
<b>Undergraduate Research, Astronomy Department   UW-Madison, WI</b> <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
<b>Undergraduate Research, Astronomy Department   University of Michigan, MI</b> <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, ezpadova, 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

Doghhouse 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

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- **Member of the Astrobiology Team**

September 2022 - May 2023

*Mrover* | University of Michigan, MI



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

- **Museum Docent**

September 2021 - April 2022

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



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

- **Part-time Tutor**

June 2021 - August 2022

*The Jingrui Academy of Science* | Ningbo, China

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

## MISCELLANEOUS

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**Languages:** Chinese, English

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