

# YUROU LIU

New Haven, CT • +1 (203) 808-3039 • [yurou.liu@yale.edu](mailto:yurou.liu@yale.edu) • <https://yurouninaliu.github.io> • 0009-0007-9211-2884

---

## EDUCATION

YALE UNIVERSITY

New Haven, CT

B.S. in Physics (Intensive)

Aug 2022 - May 2026 (anticipated)

B.S. in Computer Science

GPA: 3.99

## AWARDS AND HONORS

Alexander P. Hixon Fellowship, Yale University, 2025

Summer Undergraduate Research Fellowship, California Institute of Technology, 2024

First-Year Summer Research Fellowship in the Sciences & Engineering, Yale University, 2023

## RESEARCH EXPERIENCE

INDIANA UNIVERSITY BLOOMINGTON

Bloomington, IN

Summer Research Student, Department of Astronomy

June 2025 (anticipated)

CALIFORNIA INSTITUTE OF TECHNOLOGY

Pasadena, CA

Summer Research Student, Department of Astronomy

June 2024 - Present

- Performed atmospheric retrievals on CRIRES+ spectra of directly imaged gas giant 2M0249-0557 c and two benchmark brown dwarfs in the  $\beta$  Pictoris moving group
- Developed a nested sampling retrieval code using petitRADTRANS and PyMultiNest to constrain C/O ratio, metallicity, and  $^{12}\text{CO}/^{13}\text{CO}$  isotopologue ratio
- Interpreted retrieved compositions in the context of formation pathways, supporting a star-like formation mechanism for 2M0249-0557 c

*Mentored by Dr. Yapeng Zhang, Dr. Jerry Xuan, and Prof. Dimitri Mawet*

YALE UNIVERSITY

New Haven, CT

Undergraduate Researcher, Department of Astronomy

June 2023 – March 2025

- Ran N-body simulations with REBOUND and REBOUNDx to model mirrored ZLK migration in binary star systems
- Estimated occurrence rates of double hot Jupiters using the observed distribution of Gaia binaries hosting hot Jupiters
- Quantified the impact of mass and inclination asymmetries on double hot Jupiter formation

*Mentored by Dr. Tiger Lu and Prof. Malena Rice*

## PUBLICATIONS

Liu, Y., Lu, T. and Rice, M. Accepted to ApJ

Liu, Y. and Zhang, Y. In Prep

Lu, T., Tajer, H., Hernandez, D.M., Rein, H., Liu, Y. and Rice, M. Submitted

## PRESENTATIONS

246 <sup>th</sup> American Astronomical Society Meeting	Anchorage, AK, USA
<i>Probing Gas Giant Origins: Chemistry and Isotope Ratios of Substellar Atmospheres in the <math>\beta</math> Pictoris Young Moving Group</i>	June 2025
The 55 <sup>th</sup> Meeting of the Division of Dynamical Astronomy	Toronto, Canada
<i>The Formation of Double Hot Jupiter Systems Through ZLK Migration</i>	May 2024

## POSTERS

New York Area Exoplanet Meeting	New York, NY, USA
<i>Probing Gas Giant Origins: Chemistry and Isotope Ratios of Substellar Atmospheres in the <math>\beta</math> Pictoris Young Moving Group</i>	May 2025

## OBSERVING EXPERIENCE

Palomar Observatory (DBSP): 1 night  
*Spectroscopy of a Gas Giant Exoplanet in Optical Wavelength*

## TEACHING EXPERIENCE

YALE UNIVERSITY	New Haven, CT
Undergraduate Learning Assistant, Department of Physics	Sep 2023 – May 2024
PHYS 261: Intensive Introductory Physics	
PHYS 260: Intensive Introductory Physics	

## SCIENCE COMMUNICATION AND OUTREACH

Contributor and layout editor, Yale Scientific Magazine

- Created original artwork and designed print layouts
- Provided individualized feedback to contributors
- Improved layout designs for publication
- Led layout workshops to train new designers

Workshop leader, Yale Guild of Book Makers

- Taught hands-on workshops in bookbinding