Lillian Yushu Jiang

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Summary

Research interests: Formation and accretion of planetary-mass companions; high-contrast imaging; machine learning for astrophysical image classification.

Publications: 3 first-author papers (1 published, 1 accepted, 1 submitted); 4 co-author papers.

Observing: PI/Co-I on HST, JWST, Keck, and HET programs; 72 orbits on HST as PI.

Grants: $241,199 in research funding as PI.

Education

University of California, Santa Barbara *Expected 2028*

Ph.D. in Physics *Advisor: Brendan Bowler*

The University of Texas at Austin *Sep 2022 – Dec 2024*

M.A. in Astronomy *Advisor: Brendan Bowler*

Thesis: *Deep Hα Imaging Survey of IC 348 with the Hubble Space Telescope: Demographics of Accreting Protoplanets on Wide Orbits*

Smith College *Sep 2018 – May 2022*

B.A. in Astronomy (*Highest Honors*) and B.A. in Computer Science *Advisors: Kimberly Ward-Duong, Kate Follette*

Senior Honors Thesis: *A FUV to NIR Accretion Luminosity Accounting of the Young Brown Dwarf 2M1207A*

Professional Appointments

Graduate Student Researcher, UC Santa Barbara *Summer 2025 – present*

Teaching Assistant, UT Austin *Fall 2024*

Graduate Research Assistant, UT Austin *Fall 2022 – Spring 2025*

Five-College Astronomy Undergraduate Intern, Amherst, MA *May – Aug 2021*

Advisors: Kate Follette, Kimberly Ward-Duong

La Serena School of Data Science Participant, La Serena, Chile *Aug – Sep 2021*

Advisor: Paula Sánchez Sáez

Special Studies Researcher, Smith College *Sep 2020 – May 2022*

Advisor: James Lowenthal

Tinker Lab Research Assistant, Smith College *Feb – Jun 2020*

Advisor: Katherine M. Kinnaird

Awards & Fellowships

2025 **Graduate Excellence Fund**, UT Austin Graduate School

2024 **Board of Visitors 2nd Year Defense Award**, UT Austin Astronomy Dept.
Graduate Excellence Fund, UT Austin Graduate School

2022 **Society of Sigma Xi**, Smith College
AAS 240 Chambliss Student Award Honorable Mention, Pasadena, CA

2021 **La Serena School of Data Science Full Scholarship**, AURA Observatory, Chile
Dean's List, Smith College

2020 **Harvard WECode Technology Leadership Award**, Harvard University
Dean's List, Smith College

Observing & Grants

Awarded Time (PI)

WFC3, Hubble Space Telescope (Cycle 34, GO–18436) — 12 orbits
Imaging Six Young Planetary-Mass Companions with HST/WFC3-UVIS

WFC3, Hubble Space Telescope (Cycle 33, GO–18139) — 60 orbits
Tracing Accretion in the Planetary Regime: A Comprehensive UV/Optical Survey of the Late Stages of Planet Formation

LRIS, Keck I (2026B, NASA N184) — 0.5 night
Tracing Planetary Accretion in Taurus with UV/Optical Diagnostics

LRIS, Keck I (2026B, UCO U241) — 1.5 night
Tracing Planetary Accretion in Taurus with UV/Optical Diagnostics

LRIS, Keck I (2026A, UCO U290) — 1 night
Tracing the Final Stages of Planetary Accretion in Upper Sco with UV/Optical Diagnostics

Hobby-Eberly Telescope (UT 25-01-023)
Tracing Accretion in the Planetary Regime: A Comprehensive Spectroscopic Survey of the Late Stages of Planet Formation

Awarded Time (Co-I)

Hubble Space Telescope (Cycle 34, GO–18376; PI: K. Crotts) — 20 orbits
Extending Accretion Studies into the Sub-Jupiter Regime with TWA 7 b

JWST (Cycle 4, ID 9091; PI: M. Morgan) — 17.0 hr
Imaging a Hidden Super-Jupiter Accelerating its Metal-rich M-dwarf Host

Hubble Space Telescope (Cycle 30, GO–17280; PI: Y. Zhou) — 9 orbits
Validating and Characterizing the Protoplanet Candidate AB Aur b with WFC3/UVIS UV and Optical Photometry

Hubble Space Telescope (Cycle 29, GO–17122; PI: C. Robinson) — 9 orbits
Testing Planetary Formation Mechanisms through the First FUV–Optical Spectrum of a Young, Accreting Planet

Keck (2022B; PI: K. Ward-Duong)
Establishing Accretion Relations for the Substellar Mass Regime

Grants

HST Cycle 34 GO–18436 Research Grant	$65,024
HST Cycle 33 GO–18139 Research Grant	$162,800
NASA/Keck 2026B Observing Support	$13,375

Observing Experience

NIRC2, W. M. Keck Observatory (in person, 4 nights) *July 2022 – present*
LRIS, W. M. Keck Observatory (remote, 3 nights) *June, Oct 2021*
16" Telescope, Smith College McConnell Observatory (local) *Sep 2020 – May 2022*

Publications

Papers

- **Jiang, Lillian Yushu**, Bowler, B. P., Wu, Y.-L., & Zhou, Y. (2026). *Searching for Circumplanetary Dust in the Cavity of the AB Aurigae Disk with ALMA.* Accepted to *The Astrophysical Journal Letters*. arXiv:2610.37792
- **Jiang, Lillian Yushu**, Bowler, B. P., Zhou, Y., Kraus, A. L., Andrews, S. M., Hillenbrand, L. A., Ireland, M. J., & Zhu, Z. (2026). *Deep Hα Imaging Survey of IC 348 with the Hubble Space Telescope. I. Accretion Properties of Stellar and Substellar Objects. The Astronomical Journal, 172*(5), 286. ADS link
- Van Zandt, J., Bowler, B. P., Endl, M., Cochran, W. D., MacQueen, P., Hatzes, A., Torres, G., Latham, D. W., Howard, A. W., Fulton, B., Isaacson, H., Liu, M. C., Walker, S. A. U., Xuan, J. W., Zhang, J., Soto Armendariz, R. E., Biddle, L. I., Franson, K., **Jiang, Lillian Yushu**, Morgan, M., & Tran, Q. H. (2026). *The γ Cephei System: Updated Orbits, Dynamical Architecture, and Limits on Additional Companions.* Accepted to *The Astronomical Journal*. arXiv:2608.30030
- Morgan, M., Bowler, B. P., Franson, K., **Jiang, Lillian Yushu**, Gaidos, E., Tran, Q. H., Zhang, J., Van Zandt, J., Painter, K. E., Petigura, E. A., Seligman, D. Z., Feinstein, A. D., Ciardi, D. R., Kiman, R., Fulton, B. J., Isaacson, H., Howard, A. W., & Dreizler, S. (2026). *An Outer Giant Planet or Brown Dwarf in the 51 Pegasi System? The Astronomical Journal, 172*(1), 60. ADS link
- Bowler, B. P., Zhou, Y., Biddle, L. I., **Jiang, Lillian Yushu**, Bae, J., Close, L. M., Follette, K. B., Franson, K., Kraus, A. L., Sanghi, A., Tran, Q., Ward-Duong, K., Wu, Y.-L., & Zhu, Z. (2025). *Hα Variability of AB Aur b with the Hubble Space Telescope: Probing the Nature of a Protoplanet Candidate with Accretion Light Echoes. The Astronomical Journal, 169*(5), 258. ADS link
- Zhou, Y., Bowler, B. P., Yang, H., Sanghi, A., Herczeg, G. J., Kraus, A. L., Bae, J., Long, F., Follette, K. B., Ward-Duong, K., Zhu, Z., Biddle, L., Close, L. M., **Jiang, Lillian Yushu**, & Wu, Y.-L. (2023). *UV-optical Emission of AB Aur b Is Consistent with Scattered Stellar Light. The Astronomical Journal, 166*(6), 220. ADS link

Posters (as Lead Author)

- *A Deep Hα Imaging Survey to Probe the Demographics of Accreting Planets at Wide Separations.*
  Spirit of Lyot 6; 2026 Feb 2–6; Pasadena, CA.
  Observatoire de Haute-Provence 2025; 2025 Oct 6–10; Saint-Michel-l'Observatoire, France.
  Exoplanet 5; 2024 Jun 16–21; Leiden, the Netherlands.
- *A FUV to NIR Accretion Luminosity Accounting of the Young Brown Dwarf 2M1207A.* Cool Stars 21; 2022 Jul 4–9; Toulouse, France.
- *Constructing a Multi-Wavelength Spectral Template for Accreting Brown Dwarfs.* AAS 239 iPoster-Plus; 2022 Jan 13; Salt Lake City, UT.
- *Understanding the Spectra of Accreting Substellar Objects: Observation and Data Reduction.* Five-College Astronomy Undergraduate Internship Program; 2021 Jul 29; Amherst, MA.

Posters (as Co-Author)

- *Probing Accretion and Formation Paradigms in the Substellar Regime.* Cool Stars 21; 2022 Jul 4–9; Toulouse, France.
- *Exoplanets: Finding Planets Beyond Our Star.* Smith College Celebrating Collaborations; 2021 May 6; Northampton, MA.

Invited & Contributed Talks

International Conference on Exoplanets and Planet Formation; Shanghai, China *Dec 2025*
Accretion Light Echoes and Hα Variability of a Protoplanet Candidate
Stars, Planets, and ISM Seminar; UT Austin (Contributed) *Apr 2025*
A Deep HST/WFC3 Hα Imaging Survey to Probe the Demographics of Accreting Planets at Wide Separations
Gas Accretion in Planet Formation; Heidelberg, Germany (Contributed) *Mar 2025*
A Deep HST/WFC3 Hα Imaging Survey to Probe the Demographics of Accreting Planets at Wide Separations
243rd Meeting of the American Astronomical Society; New Orleans, LA (Contributed) *Jan 2024*
A Deep HST/WFC3 Hα Imaging Survey to Probe the Demographics of Accreting Planets at Wide Separations
Stars, Planets, and ISM Seminar; UT Austin (Contributed) *Mar 2023*
A Deep Hα Imaging Survey to Probe the Demographics of Accreting Planets at Wide Separations
FCAD Senior Celebration Thesis Talk; UMass Amherst (Contributed) *May 2022*
A FUV to NIR Accretion Luminosity Accounting of the Young Brown Dwarf 2M1207A

Service & Outreach

- **GUMMY mentor:** graduate student mentor for astronomy undergraduates at UT Austin, advising on courses and careers in astronomy
- **Volunteer, 239th AAS Meeting:** assisted in monitoring Oral & Special Sessions
- **AEMES mentor:** peer mentor for first-year students of minority background at Smith College, serving as an academic and social resource
- **Tech and Design Chair:** curated the online Smithies in CS community of 350+ members, helping members of all majors excel in CS beyond the classroom
- **Student Ambassador:** publicized Harvard WECode at Smith College and reached out to underrepresented students

Media Links & Appearances

- **Hubble Cycle 33 Science Highlights**
- **AAS 240 Chambliss Student Award Winners**

Technical Skills

Programming: proficient in Python, Java, Unix shell scripting, JavaScript, and LaTeX; working knowledge of Mathematica, IDL, x86 Assembly, and Clojure

Software & pipelines: machine learning, deep learning, image processing, Jupyter, MESA, SAOImageDS9, LPipe, PypeIt, Fusion 360, Microsoft Office

Languages: native/bilingual proficiency in English and Chinese; professional working proficiency in Cantonese