Gillis Lowry

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Education

B.A. in Astronomy, Cum Laude, Cornell University *Graduated May 2024*

- Minor in science communication.

Relevant coursework: Planetary Atmospheres, Planetary Image Processing, Exoplanets & Planetary Systems, Multiwavelength Astronomy, Symbolic & Numeric Computing (incl. linear algebra & differential equations)

M.S. in Astronomy and Astrophysics, San Francisco State Univ. *Aug. 2025 –*

Relevant coursework: Inclusive Pedagogy, Stellar Astrophysics, Observational Techniques, Computational Physics (incl. N-body simulations, Possion's and Laplace's eq.)

Research Experience

Astronomy Research Assistant, Cornell University *Sep. 2022 – Aug. 2025*

- First-author paper in MNRAS: refined estimates of habitable zone planets using *Gaia* DR3, w/ guidance of Prof. Lisa Kaltenegger. Developing outreach extension of this research. Leading follow-up paper w/ Bayesian model comparisons of atmospheric retrievals for Earth-like exoplanets.
- Analyzed TESS data for hot Jupiter transit timing variations (w/ advisor Dr. Jake Turner).
- Probed the chemical composition of WASP-96 b via Bayesian model comparison and parameter estimation (w/ advisor Dr. Ryan MacDonald and Radica, M. et al.).

Gilead Technical Research Assistant, San Francisco State Univ. *Aug. 2025 –*

- One of two students in Astronomy & Physics Department selected for Gilead-funded position: continuing research with existing collaborators from Cornell (5 hr/week) and presenting weekly planetarium shows while developing new astronomy lab curriculum (5 hr/week).

Work Experience

Graduate Teaching Assistant, San Francisco State Univ. *Aug. 2025 –*

- Teaching 3-hr physics or astronomy lab weekly, implementing new curriculum.

Science Communicator *March 2022 –*
Carl Sagan Institute, Cornell University

- ***Co-organized Carl Sagan's 90th Birthday events at Cornell*** for thousands of guests (in-person and online) w/ CSI Director Lisa Kaltenegger.
- Create posts for and fully manage CSI social media, conduct interviews, produce/edit videos (all ongoing).

Planetarium Facilitator, Saint Louis Science Center *Aug. 2021 – Jan. 2024*

- Presented my own live, 45-minute shows to upwards of 150 guests with a Zeiss Universarium projector.

President and Outreach Coordinator *June 2022 – June 2024*

Cornell Astronomical Society, Fuertes Observatory

- Authorized to open observatory, operate telescopes for hundreds of weekly guests (from 2021–2025).
- Spearheaded successful day trip to eclipse totality on April 8th, 2024—arranged buses, waivers, supplies for over four hundred Cornell students. Promoted eclipse safety to thousands locally via fliers, videos.
- Directed events such as lecture series, two Carl Sagan Nights, and our telescope's 100th anniversary.
- Mentored newer members, guided monthly telescope training.
- Wrote articles, advised other writers, and helped edit each issue of monthly public newsletter.
- Conducted ~monthly private tours (Girl Scouts, high schoolers w/ individualized education plans, etc.).

Publicity Lead, Alpha CubeSat *Sep. 2021 – July 2024*

Space Systems Design Studio, Cornell University

- Collaborated with Intrepid Sea, Air, and Space Museum staff to design temporary museum exhibit.
- Produced videos about Alpha CubeSat—wrote and presented scripts, filmed my own footage, and edited final product. Spoke in panel discussions. Created video that played in the Intrepid exhibit.
- Oversaw the development of an Alpha CubeSat website and coordinated work of publicity team.

AWARDS

Finalist, CSU Student Research Competition *April 2026*

Second Prize, Griffith Observer Science Writing Contest *July 2023*

- Placed second in the Joan and Arnold Seidel Griffith Observer Science Writing Contest for "When Spaceships Pass in the Night: Exoplanets and the Search for Life"—article published in Oct. 2023 issue.

Dean's List, College of Arts & Sciences, Cornell University *Aug. 2022 – May 2023*

PUBLICATIONS

- Bohl A.*, Lawrence L.*, **Lowry G**.*, Kaltenegger L. Probing the Limits of Habitability: A Catalog of Rocky Exoplanets in the Habitable Zone. Published in MNRAS March 2026.
- Radica M. et al. (incl. **Lowry G.**) Super-Solar Metallicity and Tentative Evidence for Photochemistry on WASP-96 b from JWST and Ground-Based VLT Transmission Spectroscopy. Published in AJ April 2026.
- **Lowry G**.*, Kaltenegger L., MacDonald R. Prime Earth-like Exoplanets and their Light Fingerprints. To be submitted to MNRAS.
- Novak C., Kaltenegger L., Bohl A., **Lowry G**. Planets on the Edge: From ExoEarth to ExoVenus in the Transition Zone. To be submitted to MNRAS.
- Turner J.D., **Lowry G.** Probing the 3-D nature of the atmosphere of the ultra-hot Jupiter WASP-121b using GHOST high-resolution observations. To be submitted to ApJ.
- Solano-Oropeza D., Turner J.D., **Lowry G.**, et al. Ultra-precise constraints on the orbital decay of WASP-12b from TESS. To be submitted to ApJ.
- Flagg L. et al. (incl. **Lowry G**.). JWST observations of the warm ice giant GJ 3470b. To be submitted to ApJ.

Conference Presentations

- **Lowry, G.,** Kaltenegger, L. A Catalog of Rocky Exoplanets in the Habitable Zone and Their Light Fingerprints. SFSU College of Science and Engineering Project Showcase, April 2026.
- **Lowry, G.,** Morse, J., Cool, A. Renovating SF State's Planetarium to Fuel STEM Education and Outreach on Campus and Beyond. SFSU College of Science and Engineering Project Showcase, April 2026.
- **Lowry, G.,** Kaltenegger, L. A Catalog of Rocky Exoplanets in the Habitable Zone and Their Light Fingerprints. **Finalist at CSU Student Research Competition**, April 2026.
- **Lowry, G.,** Kaltenegger, L. Prime Earth-like Exoplanets and their Light Fingerprints, iPoster presentation at AAS Meeting #247, Jan. 2025. **Chambliss Astronomy Achievement Student Award Finalist.**
- Sanchez-Fleming, M. et al. including **Lowry, G.,** Undergraduate-Run Outreach with a Centenarian Telescope: Fuertes Observatory and the Cornell Astronomical Society, contributions to iPoster at AAS Meeting #247, Jan. 2025.
- **Lowry, G.,** Kaltenegger, L. Prime Earth-like Exoplanets and their Light Fingerprints, oral presentation at Bay Area Exoplanet Meeting, Nov. 2025.
- **Lowry, G.,** Kaltenegger, L. Prime Earth-like Exoplanets and their Light Fingerprints, poster presentation at Emerging Researchers in Exoplanet Science (ERES) Symposium X, June 2025.
- **Lowry, G.,** Kaltenegger, L. Visualizing the Habitable Zone: A New Public-Facing Habitable Exoplanet Catalog, oral presentation at AAS Meeting #245, Jan. 2025.
- **Lowry, G.,** Kaltenegger, L. Visualizing the Habitable Zone: A New Public-Facing Habitable Exoplanet Catalog, poster presentation at ERES Symposium IX, July 2024.

Outreach Presentations

- The Search for Intelligent Life on Earth - public talk for Cornell Astronomical Society, Nov. 7, 2025.
- Finding Aliens is Harder Than You Think - Astro on Tap in Ithaca, NY, June 12, 2025.
- Presenting Science to the Public - talk for students of the Cornell Astronomical Society, April 18, 2025.
- LGBTQ+ astronomers panel for Girl Scouts Beyond Program, Oct. 18, 2024.
- Moderator and host of Audience Q&A with Ann Druyan at Cornell Cinema, February 13, 2024.
- Carl Sagan's Birthday Night at the Cornell Astronomical Society: talk on his life and work, Nov. 7, 2023.
- NASA Spaceflight Live: TINY SATS - NASA's CubeSat Launch Initiative and Beyond panel, June 25, 2023.
- Yuri's Night at Cornell Astronomical Society: talk on human spaceflight, April 2022, 2023, 2024.

In Press

Research

- 45 best planets for life revealed in real-life 'Project Hail Mary' - EarthSky.org, April 2026
- These 45 exoplanets may be the best places to search for alien life - Space.com, March 2026
- Where should we send a real 'Hail Mary' spacecraft? A new study has the answers - Space.com, March 2026
- Astronomers reveal best places to hunt for alien life - Newsweek, March 2026
- The 45 planets most likely to host alien life, according to astronomers - Popular Science, March 2026

- If we ever build a Project Hail Mary spaceship, these are the worlds we should visit to find alien life and save Earth - BBC Sky at Night Magazine, March 2026
- The best places to look for alien life: Scientists identify 45 Earth-like worlds to explore for a 'Project Hail Mary' - Royal Astronomical Society, March 2026
- Where to find other Earths? New list narrows down the targets - Cornell Chronicle, March 2026

Outreach

- Thornton Hall plans to bring planetarium to the 21st century - Golden Gate Xpress, Nov. 2025
- Lunar eclipse spotting at Cornell: Here's how it looked and when to see the next one - Ithaca Journal, March 2025
- Cornell honors Sagan's 90th birthday with celebration of science - Cornell Chronicle, Nov. 2024
- Totality awesome: 400 students travel north for rare eclipse - Cornell Chronicle, April 2024
- Journey into darkness: Cornell Astronomical Society traveling to eclipse's path of totality - Ithaca Journal, March 2024
- 'Cosmos' screening features ice cream and live Q&A with Ann Druyan - Cornell Chronicle, Feb. 2024
- Postcards from Earth: Hologram project showcased at Intrepid - Cornell Chronicle, Feb. 2023
- Crowd gathers to wish 'happy birthday' to Fuertes telescope - Cornell Chronicle, Oct. 2022

Skills

Coding Languages: Python (incl. research & visualization), Matlab (incl. image processing), Mathematica (incl. linear algebra & differential equations)

Programs: POSEIDON atmospheric retrieval package, Terragen 4 (VFX/CGI), OpenSpace (astronomy data visualization), ArcGIS Pro & Online, Adobe Photoshop & InDesign, Final Cut Pro X, Microsoft Office Suite, Zeiss Universarium Mark IX star projector

Telescope Operation

Irving P. Church Telescope (12-inch refractor), Fuertes Observatory, Ithaca, NY — *Five years*

Cornell Space Sciences Building Telescope, (3.8-meter radio), Ithaca, NY — *One semester*

James R. Houck Telescope (25-inch optical reflector), Ithaca, NY — *One semester*