

# Rohan Gupta

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## EDUCATION

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<b>University of Michigan</b>	Currently Enrolled
<i>PhD, Astronomy</i>	
<b>University of Chicago</b>	Graduated Jun 2025
<i>Masters Program in Computer Science</i>	
<b>University of Chicago</b>	Graduated Jun 2024
<i>Bachelor of Science in Astrophysics (Honors), Bachelor of Science in Computer Science (with specialization in Human Computer Interaction), Bachelor of Arts in Physics</i>	

## SKILLS

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**Programming Languages:** C/C++, Python, Julia

**Tools:** Git/GitHub, Linux, Slurm, D3.js

## RESEARCH EXPERIENCE AND LAB EXPERIENCE

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<b>Prof. John Monnier</b>   <i>PhD Student at UMICH</i>	Aug 2025 – Present
<ul style="list-style-type: none"> <li>Working on applying generative priors to image reconstruction in optical interferometry to reveal time-variable substructures in protoplanetary disks. Testing various models such as normalizing flows and latent diffusion methods, and benchmarking against current image reconstruction methods such as CLEAN and MiRA.</li> </ul>	
<b>Prof. Jacob Bean</b>   <i>Research Assistant at UChicago</i>	May 2023 – Jul 2025
<b>Instrumentation Lead:</b> Andreas Seifahrt <ul style="list-style-type: none"> <li>Worked on integrating a laser frequency comb into the calibration scheme of MAROON-X, an extreme precision radial velocity spectrograph at the Gemini-North telescope. This work culminated in a thesis titled “Wavelength Calibration of the Extreme Precision Radial Velocity Spectrograph MAROON-X using a Laser Frequency Comb and a Fabry-Perot etalon” and a poster presentation at the 245th AAS in 2025.</li> </ul>	
<b>Prof. Doyal “Al” Harper</b>   <i>Research Assistant at UChicago</i>	Apr 2023 – Jul 2025
<b>Lab Manager:</b> Marc Berthoud <ul style="list-style-type: none"> <li>Built control software (C#, Python) and mechanical adapters to integrate a new filter wheel, guider, and adaptive optics unit at Stone Edge Observatory. Conducted on-sky tests and released the full control suite and documentation for external observatories.</li> </ul>	

## MISSION DEVELOPMENT & GRANT EXPERIENCE

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<b>UChicago Space Program</b>   <i>Advisor, Head of Funding &amp; Outreach, Engineer</i>	2020 – 2025
<ul style="list-style-type: none"> <li>Founding member of UChicago’s cubesat program. Shaped early mission design, team structure, and ground-station designs for the PULSE-A optical communications cubesat.</li> <li>Authored successful grant proposals leading to \$70,000+ in direct funding.</li> <li>Co-authored NASA CSLI proposal that awarded the team a launch opportunity. Co-author on a finalist proposal submitted to NSF for \$1M grant to support follow up mission to attempt quantum key distribution from a cubesat (PULSE-Q). Work contributed to two conference papers.</li> </ul>	

## PUBLICATIONS

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### Four sub-Earth planets orbiting Barnard's Star from MAROON-X and ESPRESSO

*The Astrophysical Journal Letters (10.3847/2041-8213/adb8d5)*

Ritvik Basant , Rafael Luque , Jacob L. Bean , Andreas Seifahrt , Madison Brady , Lily L. Zhao , Nina Brown , Tanya Das , Julian Stürmer , David Kasper , Rohan Gupta , Gumundur Stefánsson 

### PULSE-A Mission Overview: Optical Communications for Undergraduate Students

*2025 SmallSat Conference (10.48550/arXiv.2507.05684)*

Logan Hanssler , Seth Knights , Graydon Schulze-Kalt , Juan Ignacio Prieto Asbun , Robert Pitu , Lauren Ayala , Rohan Gupta , Vincent Redwine , Spencer Shelton , Catherine Todd , Maya McDaniel , Sofia Mansilla , John Baird , Mason McCormack , Leah Vashevko , Tian Zhong , Michael Lembeck 

### PULSE-A: Polarization-Modulated Optical Communications at the CubeSat Form Factor

*Accepted at IEEE AeroConf 2026*

Logan Hanssler , Juan Ignacio Prieto Asbun , Seth Knights , Sofia Mansilla , Everette Spencer Shelton , Catherine Todd , Elizabeth Rosario, Graydon Schulze-Kalt , Leah Vashevko , Daniel Lee, Robert Pitu , Rodrigo Spinola e Castro, Aidan Etterer, Akash Piya, Brian Yu, Vidya Suri, Lauren Ayala , Rohan Gupta , Mason McCormack, Vincent Redwine , Danielle Zumi Riekse, Tian Zhong , Michael Lembeck 

## CONFERENCES AND PRESENTATIONS

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### Wavelength Calibration of the Extreme Precision Radial Velocity Spectrograph MAROON-X using a Laser Frequency Comb and a Fabry-Perot etalon

*245th Annual Meeting of the American Astronomical Society | Poster Presentation*

January 2025

## TEACHING EXPERIENCE

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### Graduate Student Instructor | University of Michigan

Fall 2025

- ASTRO 361 - Astronomical Techniques (Fall 2025)

### Lecturer | University of Chicago

Summer 2025

- ASTR 20500 - Introduction to Python for Astrophysics (3 week intensive summer course, Summer 2025)

### Teaching Assistant | University of Chicago

2023 – 2025

- ASTR 20500 - Introduction to Python for Astrophysics (Fall 2023, Fall 2024)
- ASTR 21100 - Computational Techniques in Astrophysics (Winter 2024, Winter 2025)
- ASTR 21200 - Observational Techniques in Astrophysics (Spring 2024)
- CMSC 23900 - Data Visualization (Spring 2025)

## LEADERSHIP ACTIVITIES

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### SEDS-USA | Treasurer & Board Member

2022 – 2024

- Managed the finances and operations of a 10,000 member non-profit. Oversaw a \$ 150,000 annual budget and made strategic decisions as part of an 8 member national board.