# Rohun Agrawal

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EDUCATION California Institute of Technology

2021 - 2025

B.S. Applied and Computational Mathematics

Minor: Computer Science

GPA: 4.1/4.3

RESEARCH EXPERIENCE Caltech, Georgia Gkioxari Lab Advised by Prof. Georgia Gkioxari January 2024 – Present

- Formulated and implemented an agentic workflow that produces a dynamic domain-specific language for visual program synthesis, improving 3D spatial rea-
- soning, and outperforming large vision-language models.
  The project won Meta's LLM Evaluation Research Grant for ongoing work, and is in submission at CVPR 2025.

# NASA Jet Propulsion Lab, ML Group

June 2023 – September 2023

Machine Learning Research Intern

- Researched calibration of a Gaussian Process Regression model for Martian frost likelihood.
- Reduced calibration error by over 6x for more reliable uncertainty estimates, improving confidence in 63% of scientific regions of interest.

#### MIT, William Freeman Lab

January 2023 – June 2023

Advised by Mark Hamilton

• Developed and evaluated a novel feature distillation algorithm for features from Meta's DINO model aimed at improving unsupervised semantic image segmentation.

### Caltech, Katie Bouman Lab

January 2022 – June 2023

Advised by Prof. Oscar Leong

- Developed an alternating minimization algorithm that samples from a denoiser via Langevin Dynamics to solve imaging phase retrieval problems.
- First-author publication in ICASSP 2023.

WORK Experience

# Apple, Media Analysis Team

June 2024 – September 2024

Machine Learning Intern

- Implemented and trained deep models from scratch for a video-related task with a focus on improving inference speed for similar output quality.
- Selected as 1 out of 10 interns to present to Craig Federighi, Senior VP and head of the Software Engineering Org.

#### **PUBLICATIONS**

## Visual Agentic AI for Spatial Reasoning with a Dynamic API

D. Marsilli, R. Agrawal, Y. Yue, G. Gkioxari.

Submitted to Conference on Computer Vision and Pattern Recognition (CVPR) 2025.

Holistic Mapping of the Present-day Martian Seasonal CO2 Frost: Part 1 S. Diniega, G. Doran, S. Lu, M. Wronkiewicz, J. Widmer, R. Agrawal, U. Rebbapragada. Submitted to Planetary Science Journal.

#### Alternating Phase Langevin Sampling with Implicit Denoiser Priors for Phase Retrieval R. Agrawal, O. Leong. International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2023. Meta LLM Evaluation Research Grant (for project with Prof. Gkioxari) Honors and 2024 Caltech Athlete of the Year AWARDS 2024 NCAA All-Academic Honors - Track & Field 2024 Housner Student Discovery Fund Recipient 2023 Skjellum Research Fellowship 2022 Teaching EE 150: Introduction to Deep Learning (TA) Winter 2025 ACM 116: Introduction to Probability Models (TA) Fall 2024 CS 12: Machine Learning in Tensorflow (Instructor) Spring 2024 ACM 104: Applied Linear Algebra (TA) Fall 2023 CS 12: Machine Learning in Tensorflow (TA) Spring 2023 2021 - Present ACTIVITIES Caltech Data Science Organization, President 2021 - Present NCAA Cross Country and Track, Captain