

Patrick Rim

✉ patrick.rim@yale.edu

🌐 patrickrim.com

🌐 linkedin.com/in/patrickrim

Research Interests Building embodied AI agents with multimodal {vision + language/range} perception for 3D tasks {reconstruction + generation}. Adaptive and robust sensor fusion {camera + lidar/radar} in challenging and dynamic real-world settings {continual + unsupervised}.

Education

Yale University 2024 – Present
Ph.D. in Computer Science
Advisor: Prof. Alex Wong | Yale Vision Lab

Caltech 2020 – 2024
B.S. in Computer Science, Minor in Applied Mathematics
GPA: 4.3/4.3 (Best Academic Record in Computer Science)

Industry Experience

Google, Research Intern May 2026 – Present
Mentors: Verse Zhou, Federico Tombari

- Selected for the Research Intern program (directly contributing to product; full-time conversion track). Integrating Gemini + feed-forward 3D reconstruction.

NVIDIA, Research Scientist Intern Feb 2026 – May 2026
Mentors: Jaehyun Jung, Joohwan Kim

- Led the creation of Spatial-IQ, a novel hierarchical framework that “deconstructs” and investigates spatial reasoning in multimodal large language models (MLLMs).
- Showed that decomposing spatial reasoning into sub-tasks via chained SFT-CoT and RLVR improves spatial intelligence in MLLMs. Paper submitted to NeurIPS 2026.

Meta Reality Labs, Research Scientist Intern May 2025 – Jan 2026
Mentors: Kun He, Tomas Hodan

- Led the creation of SHOW3D, the first ever hand-object interaction dataset captured in the wild. The most valuable 4.6 million frames of egocentric data ever captured!
- Lead author of CVPR 2026 paper describing our mobile capture system, novel 3D hand and object pose estimation pipelines, and applications to robotics and teleoperation.

Squarepoint, Quantitative Research Intern Jun 2023 – Sep 2023

- Market structure analysis to find predictive factors using statistical and ML methods.

Selected Publications

“SHOW3D: Capturing Scenes of 3D Hands and Objects in the Wild”
P. Rim, K. Harris, B. Copple, S. Han, X. Xie, I. Shugurov, S. An, H. Wen, et al.
IEEE/CVF Computer Vision and Pattern Recognition (**CVPR**), 2026.

“Radar-Guided Polynomial Fitting for Metric Depth Estimation”

P. Rim, H. Park, V. Ezhov, J. Moon, A. Wong.

IEEE/CVF Computer Vision and Pattern Recognition (**CVPR**), 2026.

“ProtoDepth: Unsupervised Continual Depth Completion with Prototypes”

P. Rim, H. Park, S. Gangopadhyay, Z. Zeng, Y. Chung, A. Wong.

IEEE/CVF Computer Vision and Pattern Recognition (**CVPR**), 2025.

“ETA: Energy-based Test-time Adaptation for Depth Completion”

Y. Chung*, H. Park*, **P. Rim***, X. Zhang, J. He, Z. Zeng, S. Cicek, B. Hong, et al.

(*equal contribution)

International Conference on Computer Vision (**ICCV**), 2025.

“ODE-GS: Latent ODEs for Dynamic Scene Extrapolation with 3D Gaussian Splatting”

D. Wang, **P. Rim**, T. Tian, A. Wong, G. Sundaramoorthi.

International Conference on Learning Representations (**ICLR**), 2026.

“Unsupervised Depth Completion via Occluded Region Completion as Supervision”

H. Park, R. Chen, **P. Rim**, D. Lao, A. Wong.

International Conference on Learning Representations (**ICLR**), 2026.

“Iris: Integrating Language into Diffusion-based Monocular Depth Estimation”

Z. Zeng, J. Ni, D. Wang, **P. Rim**, Y. Chung, F. Yang, B. Hong, A. Wong.

IEEE/CVF Computer Vision and Pattern Recognition (**CVPR**), 2026.

“Extending Foundational Monocular Depth Estimators to Fisheye Cameras with Calibration Tokens”

S. Gangopadhyay, J. Kim, X. Chen, **P. Rim**, H. Park, A. Wong.

International Conference on Computer Vision (**ICCV**), 2025.

“SparseFusion: Fusing Multi-Modal Sparse Representations for Multi-Sensor 3D Object Detection”

Y. Xie, C. Xu, M. Rakotosaona, **P. Rim**, F. Tombari, K. Keutzer, M. Tomizuka, W. Zhan.

International Conference on Computer Vision (**ICCV**), 2023.

“Quadric Representations for LiDAR Odometry, Mapping and Localization”

C. Xia, C. Xu, **P. Rim**, M. Ding, N. Zheng, K. Keutzer, M. Tomizuka, W. Zhan.

IEEE Robotics and Automation Letters (**RA-L**), 2023.

Academic Experience

Yale Vision Lab

Aug 2024 – Present

– Adaptive efficient 3D vision; multimodal perception, reconstruction, and generation.

Berkeley AI Research (BAIR)

Aug 2022 – Jun 2024

– Multi-sensor 3D object detection, joint point cloud segmentation and generation.

Caltech, Vision and Learning

May 2022 – Jun 2024

- Diffusion models for conditional exocentric trajectory generation, Interpretable AI.

Honors & Awards	ICML Outstanding (Gold) Reviewer	2026
	Yale Computer Science “Rising Star” Award	2025
	Graduate Nathan Hale Fellowship	2024
	Henry Ford II Scholar Award Recipient	2023
	Jack E. Froehlich Memorial Award Nominee	2023
	Marcella Bonsall SURF Fellowship	2022
	Caltech Hixon Prize for Writing	2022
	George W. Housner Fund Recipient	2021, 2022
	1st Place, AI Hacks Hackathon at UPenn	2021
	Top 5 Overall Hack, YHack at Yale	2021
	“Best Use of Google Cloud” Award	2021
	“Facebook: Building Community” Award	2021
	National Merit Scholarship Recipient	2020
Teaching Experience	Head Instructor (CS 12: Computer Vision for Research)	2022 – 2023
	– Independently designed and taught a term-long course that provides students with a practical and theoretical foundation in computer vision.	
	– Covered fundamental topics and advanced topics such as transformers, diffusion models, and geometric 3D vision, drawing from my own research.	
	– Taught 23 total students, including undergraduate and graduate students. ¹	
	Head TA (First-Year Success Research Institute)	Summer 2022
	– Collaboratively designed a research project for FSRI (First-Year Success Research Institute) at Caltech, a DEI (Diversity, Equity, and Inclusion) program. Work included creating mini-projects and providing in-person guidance to students over the summer.	
	– Developed curriculum for machine learning, computer vision, and robotics.	
	Staff Head TA (CS 2, CS 3, CS 24)	2021 – 2023
Leadership & Service	– Worked as TA for CS 2 (Data Structures), CS 3 (Software Design), and CS 24 (Systems).	
	– Promoted to Staff Head TA role for all three courses in 2022.	
	NeurIPS, CVPR, ICCV, ECCV, ICLR, ICML (Gold), Reviewer	2022 – Present
	IEEE Transactions on Image Processing, Reviewer	2025 – Present
	Dexterous Hands Workshop at ECCV 2026, Co-organizer	Sep 2026
	UG2+ Workshop and Challenge at CVPR 2026, Co-organizer	Jun 2026

¹Selected student endorsements:

- “I think you have made excellent video lectures and you are very good at explaining subjects clearly and concisely.”
- “The lectures have been very comprehensive and helpful. Thanks for designing a great course!”

	8th New England Computer Vision (NECV), Co-organizer	Nov 2024
	Quantitative Finance at Caltech, Head of ML Research	2022 – 2024
	Caltech Deans Office, Peer Academic Coach	2022 – 2024
	Caltech Course Ombuds Program, Ompudsperson	2020 – 2022
	Southern California Science Olympiad, Treasurer	2020 – 2021
Invited Talks & Seminars	Adapting 3D Reconstruction Models on the Fly, From Test-Time Adaptation to Continual Learning	Sep 2025
	NSF AI Institute for Edge Computing (Athena) Seminar Series	
	2D to 3D Generation – What’s Next?	Mar 2025 – May 2025
	Yale Computer Science × Biomedical Engineering	
	Adaptive, Efficient, and Robust 3D Vision	Jan 2025
	NYC Computer Vision Day 2025	
	Unsupervised Continual Depth Completion with Prototypes	Nov 2024
	The 8th New England Computer Vision (NECV) Workshop	
	Efficient 3D Perception	Mar 2023
	Berkeley Artificial Intelligence Labs	
	CaltechFN: Distorted and Partially Occluded Digits	Dec 2022
	Oral Presentation at ACCV 2022	
	Deep Sentiment Analysis of Political Campaign Videos	Oct 2022
	Caltech SFP Fall Seminar	
	Identifying the Pre-Main Sequence with t-SNE	Jun 2022
	Poster at 240th Meeting of the American Astronomical Society	
	Rethinking Galaxy Evolution with Unsupervised ML	Sep 2021
	Technical University of Denmark	