

Kushagra Tiwary

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I'm a 3rd year PhD Student at MIT co-advised by [Boris Katz](#), [Tomaso Poggio](#), and [Ramesh Raskar](#). I also collaborate closely with [Sakana AI](#) and [Brian Cheung](#) at UCSF. My research builds machines that can discover new scientific phenomena and designs inside worlds grounded by physics.

EDUCATION

Ph.D., Media Arts & Sciences, Massachusetts Institute of Technology 2023–Present

Thesis Committee: [Boris Katz](#) · [Ramesh Raskar](#) · [Tomaso Poggio](#)

Interests: AI, AI for Science, Science of Intelligence, Neuroevolution, Simulations and Modeling

S.M., Media Arts & Sciences, Massachusetts Institute of Technology 2021–2023

Thesis: *Discovering, Learning, and Exploiting Visual Cues* ([Link](#)). Advisor: [Ramesh Raskar](#)

B.S., Electrical & Computer Engineering, University of Illinois Urbana-Champaign 2015–2019

B.S. With Honors. Focus on Computer Vision & Machine Learning.

PROFESSIONAL EXPERIENCE

Incoming Teaching Assistant, Brains, Minds, and Machines Summer Course Summer 2026

Incoming Research Scientist Intern, Sakana AI Spring-Summer 2026

Growing brains with [Sebastian Risi](#).

Graduate Research Assistant, MIT Media Lab 2021–Present

Research Assistant working on understanding and building intelligence that can discover new things.

Visiting Student, UC Berkeley June 2025

Presented at [Redwood Seminar](#); visited [Bruno Olshausen's](#) group.

Graduate Student, BMM Summer Course (NSF) August 2025

One of thirty students selected for the program.

AI Engineer, Optimus Ride (Self-driving Startup) 2018–2021

- Lead architect for Multi-Tasking Model and Traffic Light Deployment for nationwide fleet ([Patented](#))
- Designed company's first *Software 2.0* system to sample rare-events
- Wrote training codebase; decreased training and release time by over 25%
- Lead release testing of models on next-gen vehicles in Boston

SELECTED PUBLICATIONS

See [Google Scholar](#) for full list.

Journals

1. K. Tiwary*, A. Young*, ..., T. Poggio, D.-E. Nilsson, B. Cheung*, R. Raskar*. **What if Eye...? Computationally Recreating Vision Evolution.** *Science Advances*, 2025
[Paper](#) · [MIT News](#) · [Science News](#) · [Website](#) · [Hacker News](#) · [TEDx](#)
2. K. Tiwary, ..., T. Poggio, R. Raskar. **A Roadmap for Generative Design of Visual Intelligence.** *MIT Press: Impacts of Generative AI*, 2024

Selected Conference Papers

1. Anonymous Authors **"BuildArena: A Physically Grounded Ecosystem for Evaluating Model Intelligence by Artifacts it Creates,** *preliminary manuscript*, 2026
2. Anonymous Authors **"Stratomata: Evaluation using model generated automata in game environments",** *preliminary manuscript*, 2026
3. S. Longpre, ..., K. Tiwary (Video Lead), ..., S. Hooker, J. Kabbara. **Bridging the Data Provenance Gap Across Text, Speech and Video.** *ICLR 2025* [[arXiv](#), [MIT Tech Review](#), [Globe & Mail](#)]
4. Z. Tasneem, A. Dave, ..., K. Tiwary, ..., A. Veeraraghavan. **DecentNeRFs: Decentralized Neural Radiance Fields.** *ECCV 2024* [[Web](#), [arXiv](#)]

5. T. Klinghoffer*, K. Tiwary*, ..., R. Raskar. **DISeR: Designing Imaging Systems with RL**. *ICCV* 2023 [Web, Paper]
6. K. Tiwary*, A. Dave*, ..., R. Raskar. **ORCa: Objects as Radiance Field Cameras**. *CVPR* 2023 [Web, arXiv, MIT News]
7. K. Tiwary*, T. Klinghoffer*, S. Somasundaram*, R. Raskar. **Physics vs. Learned Priors**. *ICCP* 2022 [arXiv]

Exhibitions

1. C. Chang, A. Young, K. Tiwary. **Recreating Vision Evolution**. *Museum of Science Boston*. April 2025
2. C. Chang, A. Young, K. Tiwary. **First Signs of Vision**. *MIT Museum After Dark*. April 2025

INVITED TALKS

MIT Tech Review EmTech AI: MIT Designs the Future	April 2026
Google Lightening Talks: AI in Scientific Discovery and Biological Applications	April 2026
What if Eye...? Computationally Recreating Vision Evolution	
• Kempner Institute, Harvard	December 2025
• Redwood Seminar, UC Berkeley	June 2025
• Caltech Vision Seminar	June 2025
• MIT Imagination in Action	April 2025
• Harvard Medical School	March 2025
• CSAIL Vision Seminar	February 2025
• TEDx Boston	September 2024
• New England Computer Vision Conference (Oral)	November 2024

Neural Rendering and Visual Cues (Multiple Papers)

- MIT Imagination in Action (Panel: Frontiers of AI Research) April 2024
- Hyundai Vision Conference, South Korea August 2023
- CSAIL Graphics Seminar September 2023

AWARDS, GRANTS, AND HONORS

Qualcomm Innovation Fellowship (North America Winner) [Media Lab, EECS]	2023
MIT-Israel Zuckerman STEM Fund Award (\$30,000; 1 of 6 at MIT)	2022–23
MIT Generative AI Seed Grant (1 of 16 at MIT)	2024
Harold and Ruth Hayward Scholarship	2018

PATENTS

1. **Decentralized Neural Radiance Fields from Crowdsourced Images**. US20250336144A1. 2025
2. **Efficient detection of structure and status of traffic lights**. WO2022246412A1. 2022

SERVICE AND ORGANIZATION

Organizer: MIT Visual Computing Seminar (Fall 2025–Spring 2026)

Workshop Organizer:

SELECTED PRESS

- Science News: “Why have so many different eyes evolved?” (Dec 2025)
- MIT News: “Scientific sandbox lets researchers explore evolution of vision” (Dec 2025)
- Globe & Mail, MIT Tech Review: Data provenance coverage (Dec 2024)
- Consent in Crisis: NYT, 404 Media, Vox, Yahoo (2024)
- TEDx Boston: “Can AI Recreate 500 Million Years of Vision Evolution?” (Sept 2024)
- MIT News Front Page: “Using reflections to see the world” (May 2023)

SKILLS

Programming: Python, C/C++, TensorFlow 1.x/2+, PyTorch, OpenCV, TensorRT, ONNX, gRPC

Languages: English, Spanish (Professional Fluency—lived in Spain for 5 years), Hindi