

EDUCATION

University of Maryland

Ph.D. Candidate in Computer Science, Advisor: Dr. Ming C. Lin

College Park, MD

2021–Present

NYU Tandon School of Engineering

M.S. in Computer Science, GPA: 3.97/4.00

Brooklyn, NY

2018–2020

University of Southern California

B.A. in Cinematic Arts (Concentration: Film Production)

Los Angeles, CA

2007–2011

PUBLICATIONS

- [1] S. Xu, **A. Gao**, A. Rai, D. Y. Lee, G.-M. Su, and M. C. Lin, “Real-time diffusion relighting as a neural sensor: Closing the low-light domain gap for robotic perception”, in *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2026.
- [2] **A. Gao**, X. Wang, G. Lee, W. Chambers, N. Williams, Y.-L. Qiao, S. Xu, and M. C. Lin, “Event-driven lighting for immersive attention guidance”, in *IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW)*, 2025.
- [3] **A. Gao**, M. Chu, M. Kapadia, M. C. Lin, and H.-T. D. Liu, “An intrinsic vector heat network”, in *International Conference on Machine Learning (ICML)*, 2024.
- [4] **A. Gao**, Y.-L. Qiao, Y. Xu, Y. Feng, J.-B. Huang, and M. C. Lin, “Dynamic mesh-aware radiance fields”, in *International Conference on Computer Vision (ICCV)*, 2023.
- [5] W. Han, H. Wu, E. Hirota, **A. Gao**, L. Pinto, L. Righetti, and C. Feng, “Learning simultaneous navigation and construction in grid worlds”, in *International Conference on Learning Representations (ICLR)*, 2023.
- [6] **A. Gao**, Y.-L. Qiao, and M. C. Lin, “NeuPhysics: Editable neural geometry and physics from monocular videos”, in *Conference on Neural Information Processing Systems (NeurIPS)*, 2022.

PROFESSIONAL EXPERIENCE

Waabi

Research Scientist

San Francisco, CA

Sept. 2025–Present

- Supervisors: Dr. Renjie Liao, Dr. Raquel Urtasun
- World models and multimodal generative models for autonomous driving.

World Labs

Research Intern

San Francisco, CA

Fall 2024

- Supervisors: Dr. Jiajun Wu, Dr. Christoph Lassner, Dr. Keunhong Park
- Generative modeling of large-scale 3D point cloud data.

Roblox

Research Intern

San Mateo, CA

Summer 2024

- Supervisors: Dr. Hsueh-Ti Derek Liu, Dr. Sheldon Andrews
- Representation-agnostic geometry learning.

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| Roblox | San Mateo, CA |
| Research Intern | Summer 2023 |
| <ul style="list-style-type: none"> – Supervisors: Dr. Hsueh-Ti Derek Liu, Dr. Maurice Chu, Dr. Mubbasir Kapadia – Learning intrinsic vector fields on surfaces for field-guided quad mesh retopology (ICML 2024). | |
| Google | Mountain View, CA |
| PhD Software Engineering Intern | Fall 2022 |
| <ul style="list-style-type: none"> – Supervisor: Dr. Peter Kimball – Used sun angle to improve offline device localization for location-based augmented reality. | |
| Amazon Web Services (AWS) | Arlington, VA |
| Software Engineer | Feb. 2021–Aug. 2022 |
| <ul style="list-style-type: none"> – Supervisor: Dr. Sandipan Kundu – Built a simulation application that generates large-scale synthetic image data for training vision models. – Quantified the gap between real and synthetic images with feature-embedding analysis. – Reconstructed 3D object geometry from images with differentiable rendering. | |
| Amazon Web Services (AWS) | Remote |
| Software Engineering Intern | Summer 2020 |
| <ul style="list-style-type: none"> – Designed and implemented a cryptographic time-stamping service for a digital signing service. | |
| AI Foundation | San Francisco, CA |
| Software Engineering Intern | Summer 2019 |
| <ul style="list-style-type: none"> – Developed a computer vision algorithm to generate facial textures for realistic 3D human avatars. | |
| Mosaic | Los Angeles, CA |
| Motion Graphics Designer | Aug. 2016–Aug. 2018 |
| <ul style="list-style-type: none"> – Modeled, animated, and rendered motion graphics for film and advertising. | |

ACADEMIC RESEARCH EXPERIENCE

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| GAMMA Lab, University of Maryland | College Park, MD |
| Research Assistant | Fall 2021–Present |
| <ul style="list-style-type: none"> – Supervisor: Dr. Ming C. Lin – Machine learning on geometric data, with applications in computer graphics and vision. | |
| Generalizable Robotics and AI Lab (GRAIL), New York University | New York, NY |
| Research Assistant | Fall 2020 |
| <ul style="list-style-type: none"> – Supervisor: Dr. Lerrel Pinto – Evaluated reinforcement learning algorithms on POMDP robotic additive manufacturing tasks. – Studied learning-based planning and control of articulated humanoids in simulation. | |
| Future Reality Lab, New York University | New York, NY |
| Research Assistant | Spring 2019 |
| <ul style="list-style-type: none"> – Supervisor: Dr. Ken Perlin – Built Mixed Reality Classroom, a multiuser, multimodal AR education platform. – Presented a live demonstration at the Verizon 5G EdTech Summit, June 2019. | |

TALKS

- **UMD Graphics & Vision Seminar**, University of Maryland, College Park
Dynamic Mesh-Aware Radiance Fields October 2023
- **AI Reading Group**, Roblox Core AI
Bridging Neural Fields with Classical Geometric Algorithms July 2023

ACADEMIC SERVICE

- Reviewer, NeurIPS 2026
- Reviewer, NeurIPS 2025
- Reviewer, SIGGRAPH 2024
- Reviewer, ICML 2024
- Reviewer, IEEE Robotics and Automation Letters (RA-L) 2024
- Reviewer, ICLR 2024
- Reviewer, NeurIPS 2023

SCHOLARSHIPS AND AWARDS

- Dean's Fellowship (University of Maryland) 2021–2023
- Graduate School of Engineering Scholarship (New York University) 2018–2020
- Presidential Scholarship (University of Southern California) 2007–2011
- National Merit Scholar (NMSC) 2007
- 1st Place, Pathfinder Award (AWS Robotics Hackathon) 2022

TEACHING

- **Teaching Assistant** at University of Maryland
Object-Oriented Programming (CMSC131) Fall 2023
- **Teaching Assistant** at University of Maryland
Object-Oriented Programming II (CMSC132) Spring 2023
- **Teaching Assistant** at University of Maryland
Introduction to Data Science (CMSC320) Fall 2021
- **Teaching Assistant** at New York University
Programming for Big Data Analytics (CS6513) Fall 2019, Spring 2020
- **Section Leader** at Stanford University
Code In Place (CS106A) Spring 2020

SKILLS

- **Languages:** Python, C++, Java, C#, MATLAB
- **Machine Learning:** PyTorch, TensorFlow, NumPy, Scikit-Learn
- **Graphics and Vision:** OpenGL, OpenCV, Blender, Unreal Engine, Unity, ARCore, ARKit
- **Creative:** Cinema 4D, After Effects, Premiere, Photoshop, Illustrator