Xiyang Wu

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Education

University of Maryland — College Park, MD
Ph.D. in Electrical and Computer Engineering, GAMMA Laboratory — *Aug. 2021 – May. 2026 (Expected)*
Advisor: Dinesh Manocha GPA: 3.83/4.00

Georgia Institute of Technology — Atlanta, GA
M.S. in Electrical and Computer Engineering, CORE Robotics Laboratory — *Aug. 2019 – May. 2021*
Advisor: Matthew Gombolay GPA: 4.00/4.00

Tianjin University — Tianjin, China
B.Eng. in Measuring and Controlling Technologies and Instruments (Honors Class) — *Sep. 2015 – Jul. 2019*
Advisor: Xiaodong Zhang GPA: 3.85/4.00

Publication

(* indicates equal contributions)

1. **Xiyang Wu***, Tianrui Guan*, Dianqi Li, Shuaiyi Huang, Xiaoyu Liu, Xijun Wang, Ruiqi Xian, Abhinav Shrivastava, Furong Huang, Jordan Lee Boyd-Graber, Tianyi Zhou, Dinesh Manocha. AUTOHALLUSION: Automatic Generation of Hallucination Benchmarks for Vision-Language Models. *arXiv:2406.10900, The 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP 2024)*. Link, Project Page.

2. Chak Lam Shek*, **Xiyang Wu***, Wesley A. Suttle, Carl Busart, Erin Zaroukian, Dinesh Manocha, Pratap Tokekar, Amrit Singh Bedi. LANCAR: Leveraging Language for Context-Aware Robot Locomotion in Unstructured Environments. *The 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)*. Link, Project Page.

3. Tianrui Guan*, Ruiqi Xian*, Xijun Wang, **Xiyang Wu**, Mohamed Elnoor, Daeun Song, Dinesh Manocha. AGL-NET: Aerial-Ground Cross-Modal Global Localization with Varying Scales. *The 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)*. Link.

4. **Xiyang Wu**, Souradip Chakraborty, Ruiqi Xian, Jing Liang, Tianrui Guan, Fuxiao Liu, Brian Sadler, Dinesh Manocha, Amrit Singh Bedi. Highlighting the Safety Concerns of Deploying LLMs/VLMs in Robotics. *arXiv:2402.10340, VLADR Workshop at The IEEE / CVF Computer Vision and Pattern Recognition Conference 2024 (CVPR 2024 Workshop)*. Link, Code, Project Page.

5. Tianrui Guan*, Fuxiao Liu*, **Xiyang Wu**, Ruiqi Xian, Zongxia Li, Xiaoyu Liu, Xijun Wang, Lichang Chen, Furong Huang, Yaser Yacoob, Dinesh Manocha, Tianyi Zhou. HallusionBench: An Advanced Diagnostic Suite for Entangled Language Hallucination and Visual Illusion in Large Vision-Language Models. *The IEEE / CVF Computer Vision and Pattern Recognition Conference 2024 (CVPR 2024)*. Link, Code.

6. **Xiyang Wu**, Rohan Chandra, Tianrui Guan, Amrit Singh Bedi, Dinesh Manocha. Intent-Aware Planning in Heterogeneous Traffic via Distributed Multi-Agent Reinforcement Learning. *7th Annual Conference on Robot Learning (CoRL 2023) (**Oral**)*. Link, Code.

7. **Xiyang Wu**, Rohan Chandra, Tianrui Guan, Amrit Singh Bedi, Dinesh Manocha. iPLAN: Intent-Aware Planning in Heterogeneous Traffic via Distributed Multi-Agent Reinforcement Learning. *MRS Workshop at The 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2023) (**Best Paper Award**)*.

8. Haoyue Liu, **Xiyang Wu**, Ning Yan, Zexiao Li, Xiaodong Zhang. A novel image registration-based dynamic photometric stereo method for online defect detection in aluminum alloy castings. *Digital Signal Processing*, 2023.

Preprints

(* indicates equal contributions)

1. Zongxia Li*, **Xiyang Wu***, Hongyang Du, Huy Nghiem, Guangyao Shi. Benchmark evaluations, applications, and challenges of large vision language models: A survey. *arXiv:2501.02189* Link,

2. Ruiqi Xian, **Xiyang Wu**, Tianrui Guan, Xijun Wang, Boqing Gong, Dinesh Manocha. SOAR: Self-supervision Optimized UAV Action Recognition with Efficient Object-Aware Pretraining. *Submitted to 2025 IEEE International Conference on Robotics and Automation (ICRA 2025).* Link,

3. **Xiyang Wu**, Souradip Chakraborty, Ruiqi Xian, Jing Liang, Tianrui Guan, Fuxiao Liu, Brian Sadler, Dinesh Manocha, Amrit Singh Bedi. Highlighting the Safety Concerns of Deploying LLMs/VLMs in Robotics. *arXiv:2402.10340, Submitted to The 39th Annual AAAI Conference on Artificial Intelligence (AAAI-25).* Link, Code, Project Page.

4. Esmaeil Seraj, **Xiyang Wu**, Matthew Gombolay. FireCommander: An Interactive, Probabilistic Multi-agent Environment for Joint Perception-Action Tasks. *arXiv:2011.00165*. Link, Code.

Research Experience

GAMMA Laboratory, University of Maryland College Park, MD
Research Assistant *Advisor: Dinesh Manocha* *Sep. 2022 – Now*

- **Foundation Model in Robot Navigation** (In progress). Using Foundation Model and reinforcement learning in robot trajectory planning.
- **Intent-aware Autonomous Driving**. We designed a distributed multi-agent reinforcement learning (MARL) algorithm that jointly predicts trajectories and intents in dense and heterogeneous traffic scenarios. We used behavioral incentive for high-level decision-making strategy that sets planning sub-goals and instant incentive for low-level motion planning to execute sub-goals to model agents' incentives to their strategies.

Cognitive Optimization and Relational (CORE) Robotics Laboratory Atlanta, GA
Research Assistant *Advisor: Matthew Gombolay* *Jan. 2020 – Dec. 2020*

- **FireCommander: Multi-agent Wildfire Pruning System with Learning from Demonstration** We investigated and implemented the state-of-art of reinforcement learning approaches on the simulation environment we designed for multi-agent firefighting tasks.

Laboratory of Micronano Manufacturing Technology Tianjin, China
Research Assistant *Advisor: Xiaodong Zhang* *Sep. 2018 – Jul. 2019*

- **Online Scratch Inspection System with Photometric Stereo Method**. We designed the online defect detection system with the photometric stereo method and multiple image processing approaches.

Teaching Experience

Graduate Teaching Assistant *University of Maryland*

ENEB 354: Discrete Mathematics for Information Technology *Fall 2024*

ENEE 664: Optimal Control *Spring 2023*

ENEE 245: Digital Circuits and Systems Laboratory *Spring 2023, Spring 2025*

ENEE 303: Analog and Digital Electronics *Fall 2022*

ENEE 307: Electronic Circuits Design Laboratory *Spring 2022*

ENEE 322: Signal and System Theory *Fall 2021*

Honor & Awards

- Best Paper Award, IROS 2023 MRS Workshop
- Merit Student Award in Tianjin University, 2018
- Samsung Scholarship, 2017
- Secondary Scholarship in Hexagon Innovation Laboratory in Tianjin University, 2016
- National Secondary Award in the 10th iCAN International Contest of Innovation, 2016

Academic Service

- **Journal Reviewer:** IEEE Access, IEEE Transactions on Systems, Man and Cybernetics: Systems, Journal of Medical Internet Research (JMIR), IEEE Robotics and Automation Letters (RA-L)
- **Conference Reviewer:** CVPR 2024 (MMFM Workshop), ICRA 2024, ICRA 2025, EMNLP 2024, NAACL 2025
- **Program Committee:** CoCoMARL Workshop at RLC 2024