

# Xiyang Wu

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## EDUCATION

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### University of Maryland

College Park, MD

Ph.D. in Electrical and Computer Engineering, GAMMA Laboratory

Aug. 2021 – May. 2026 (Expected)

Advisor: Dinesh Manocha      GPA: 3.80/4.00

### 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

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

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(\* indicates equal contributions)

- 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. *Submitted to The 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)*. Link.
- 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. *arXiv:2310.00481*, *Submitted to The 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)*. Link, Project Page.
- Ruiqi Xian, **Xiyang Wu**, Tianrui Guan, Vinay Lanka, Xijun Wang, Boqing Gong, Dinesh Manocha. UAVMAE: Object-Aware Masked Autoencoding for Self-Supervised UAV Video Pretraining. *Submitted to European Conference on Computer Vision 2024 (ECCV 2024)*.
- Xiyang Wu**, Ruiqi Xian, Tianrui Guan, Jing Liang, Souradip Chakraborty, Fuxiao Liu, Brian Sadler, Dinesh Manocha, Amrit Singh Bedi. On the Safety Concerns of Deploying LLMs/VLMs in Robotics: Highlighting the Risks and Vulnerabilities *arXiv:2402.10340*, *Submitted to Conference on Language Modeling (COLM 2024)*. Link, Code, Project Page.
- Esmail Seraj, **Xiyang Wu**, Matthew Gombolay. FireCommander: An Interactive, Probabilistic Multi-agent Environment for Joint Perception-Action Tasks. *arXiv:2011.00165*, 2020. Link, Code.

## RESEARCH EXPERIENCE

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### **GAMMA Laboratory, University of Maryland**

College Park, MD

*Research Assistant*     *Advisor: Dinesh Manocha*

*Sep. 2022 – Now*

- **Large Language Model in Robot Navigation** (In progress). Using Large Language 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

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### **Graduate Teaching Assistant**

*University of Maryland*

*ENEE 664: Optimal Control*

*Spring 2023*

*ENEE 245: Digital Circuits and Systems Laboratory*

*Spring 2023*

*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

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- 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

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- **Reviewer:** IEEE Access, IEEE Transactions on Systems, Man and Cybernetics: Systems, CVPR 2024 (MMFM Workshop), ICRA 2024, RA-L
- **Program Committee:** CoCoMARL Workshop at RLC 2024