

About Me

I am a Ph.D. student major in Computer Science at [University of Illinois Chicago \(UIC\)](#), where I am fortunate to be supervised by [Prof. Wenhao Luo](#). Prior to that, I worked as a research assistant at [University of North Carolina at Charlotte \(UNC Charlotte\)](#). I completed my master's degree in Mechanical Engineering from [Dalian University of Technology \(DUT\)](#), and obtained my bachelor's degree from [China University of Petroleum \(UPC\)](#).

I am passionate about Robotics, Control theory, Computer Vision and Reinforcement Learning, and my goal is to empower the multi-robot system with intelligence(robust and interactive autonomy), which enables robots to make informed decisions for safely and effectively collaborating with each other and with humans in the physical world. Currently, I am conducting simulations and real-world verifications of multi-agent control systems, focusing on developing algorithms for large-scale mixed-autonomy coordination.

News

- **[April 2026]** Our paper about Time-aggregated Connectivity is accepted by [RSS 2026](#).
- **[April 2026]** Our paper about Adaptive PT-CBF is accepted by [IFAC 2026](#).
- **[Jan. 2026]** Our paper about geometry-aware CBF is accepted by [ICRA 2026](#).
- **[Jun. 2025]** I will present our Multi-robot Deadlock Resolution paper in [MMLS 2025](#).
- **[Jan. 2025]** Our paper about Multi-robot Deadlock Resolution is accepted to [ICRA' 25](#).
- **[Jan. 2025]** Our paper about Sample-efficient Safe Reinforcement Learning is accepted to [ICRA' 25](#).
- **[Nov. 2024]** I will attend the [Join the 5-Day Gen AI Intensive Course with Google](#).
- **[Oct. 2024]** Our project [Turbo Trash](#) obtained the 1st place in HACKTHON CLT 2024.
- **[Sep. 2024]** I will present our work about autonomous driving on ITSC 2024.
- **[Jul. 2024]** Our paper about Courteous Driving using CBF-inspired Risk is accepted to [ITSC' 24](#).
- **[Jul. 2024]** Our paper about Individualizable Risk Assessment is accepted to [ITSC' 24](#).
- **[June. 2024]** Our paper about Data-driven Connectivity Maintenance is accepted to [IROS' 24](#).
- **[June. 2024]** Our paper about Vehicle Longitudinal Motion Prediction is accepted to [MECC' 24](#).
- **[May. 2024]** Our paper about Line-of-Sight Connectivity Maintenance is accepted to [RSS'24](#).
- **[Jan. 2024]** Our paper about Conformal Prediction is accepted to [ACC'24](#).

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- **[Oct. 2023]** I will present our work at [MRS'23](#).
- **[Oct. 2023]** Our paper about multi-agent deadlock resolution is accepted to [MRS'23](#).
- **[Oct. 2023]** Our paper about connectivity maintenance is accepted to [MRS'23](#).
- **[Sep. 2023]** Our paper about connectivity maintenance is accepted to [IROS'23 Workshop](#).
- **[Mar. 2023]** Our paper about Image-Based Visual Servoing is accepted to [IFAC'23](#).



Highlights



demo

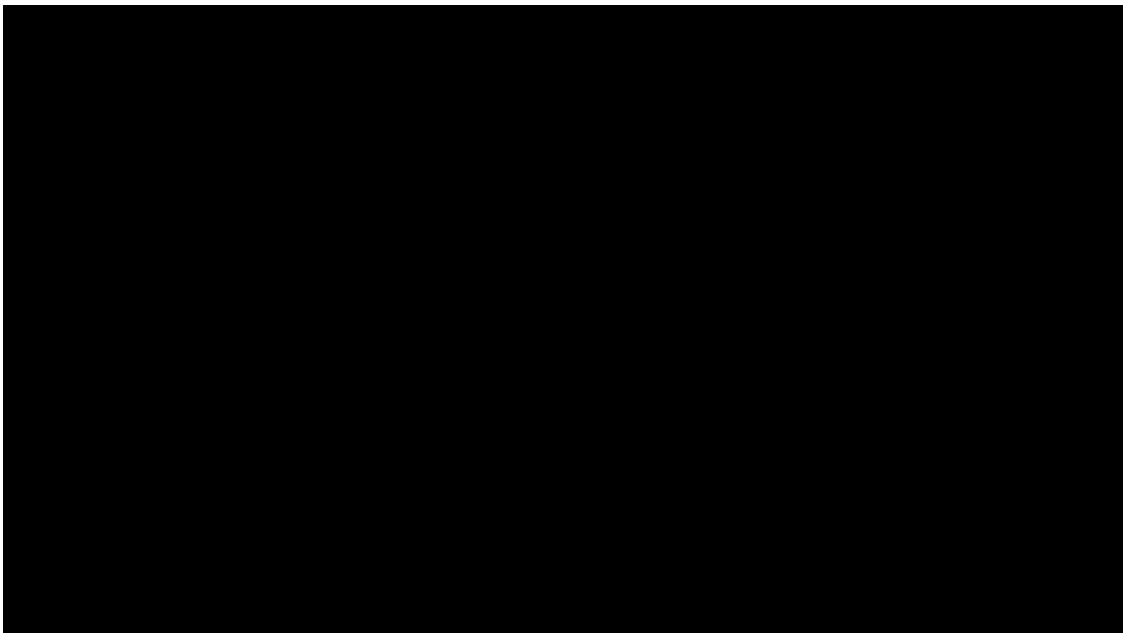
Adaptive Deadlock Avoidance for Decentralized Multi-Agent Systems via CBF-inspired Risk Measurement

Yanze Zhang, Yiwei Lyu, Siwon Jo, Yupeng Yang, Wenhao Luo

IEEE International Conference on Robotics and Automation (ICRA), 2025

Paper

- We present a novel decentralized framework that ensures both efficient task execution and deadlock resolution for multi-agent systems, which enables co-optimization between the task-related controller and deadlock resolution controller, yielding smoother robots' motion with improved overall task execution efficiency



****Courteous MPC for Autonomous Driving with CBF-inspired Risk Assessment****

Yanze Zhang, Yiwei Lyu, Sude E. Demir, Xingyu Zhou, Yupeng Yang, Junming Wang, Wenhao Luo

IEEE International Conference on Intelligent Transportation Systems (ITSC), 2024

Paper

- we develop an extension of the CBF-inspired risk evaluation framework that takes into account both noisy observed positions and motions, which are then integrated with MPC to ensure smooth and robust decision-making for AVs.

All Publications

- *Adaptive Deadlock Avoidance for Decentralized Multi-Agent Systems via CBF-inspired Risk Measurement.*

Yanze Zhang, Yiwei Lyu, Siwon Jo, Yupeng Yang, and Wenhao Luo

Accepted to the 2025 IEEE International Conference on Robotics and Automation (**ICRA' 25**), 2025

[\[PDF\]](#)

- *Computation and Sample Efficient Safe Reinforcement Learning Using Adaptive Conformal Prediction.*

Hao Zhou, **Yanze Zhang**, and Wenhao Luo

Accepted to the 2025 IEEE International Conference on Robotics and Automation (**ICRA' 25**), 2025

[\[PDF\]](#)

- *Courteous MPC for Autonomous Driving with CBF-inspired Risk Assessment.*

Yanze Zhang, Yiwei Lyu, Sude Ela Demir, Xingyu Zhou, Yupeng Yang, Junmin Wang and Wenhao Luo

Accepted to the 27th IEEE International Conference on Intelligent Transportation Systems (**ITSC' 24**), 2024

[\[PDF\]](#)[\[Demo-NGSIM\]](#)[\[Demo-IDM\]](#)

- *Individualizable Risk Assessment Map for Planning Vehicle Behaviors Respecting Perceived Safety.*

Ji Hwan Park, **Yanze Zhang**, Wenhao Luo, and Junmin Wang

Accepted to the 27th IEEE International Conference on Intelligent Transportation Systems (**ITSC'**

24), 2024

[\[PDF\]](#)

- *Integrating Online Learning and Connectivity Maintenance for Communication-Aware Multi-Robot Coordination.*

Yupeng Yang, Yiwei Lyu, **Yanze Zhang**, Ian Gao, and Wenhao Luo

Accepted to the 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS' 24**), 2024

[\[PDF\]](#)[\[Project\]](#)[\[Website\]](#)

- *A Transitional Intelligent Driver Model Enabling Vehicle Longitudinal Motion Prediction in Lane-Change Maneuvers.*

Sude E. Demir, Xingyu Zhou, **Yanze Zhang**, Wenhao Luo, and Junmin Wang

Accepted to the 4th Modeling, Estimation, and Control Conference (**MECC' 24**), 2024

[\[PDF\]](#)

- *Decentralized Multi-Robot Line-of-Sight Connectivity Maintenance under Uncertainty.*

Yupeng Yang, Yiwei Lyu, **Yanze Zhang**, Sha Yi, and Wenhao Luo

Accepted to the 2024 Robotics: Science and Systems (**RSS'24**), 2024

[\[PDF\]](#)[\[Video\]](#)

- *Safety-Critical Control with Uncertainty Quantification using Adaptive Conformal Prediction.*

Hao Zhou, **Yanze Zhang**, and Wenhao Luo

[\[PDF\]](#)

- *Occlusion-Free Image Based Visual Servoing Using Probabilistic Control Barrier Certificates.*

Yanze Zhang, Yupeng Yang, Wenhao Luo

Accepted to appear in the 22th World Congress of International Federation of Automatic Control (**IFAC'23**), 2023

[\[PDF\]](#)[\[Slides\]](#)



Honors and Awards

- 2023.06 Conference Travel Award from the Graduate School of UNC Charlotte.
- 2017, 2019 [RoboMaster](#) International First Price.



Education

- 2022.08 - Now, Doctor of Philosophy, Computer Science, University of North Carolina at Charlotte, The United States
- 2019.09 - 2022.06, Master of Engineering, Mechanical Design and Theory, Dalian University of Technology, China
- 2015.09 - 2019.06, Bachelor of Engineering, Mechanical Engineering, China University of Petroleum, China



Services

External Reviewer

- IEEE Conference on Decision and Control (CDC' 26)
- The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS' 26)
- The 2026 American Control Conference (ACC' 26)
- IEEE Transactions on Automation Science and Engineering (IEEE T-ASE)
- IEEE International Symposium on Multi-Robot & Multi-Agent Systems (IEEE MRS' 25)
- The IEEE/ASME Transactions on Mechatronics (TMeCh)
- The Conference on Robot Learning (CoRL' 25, CoRL' 26)
- IEEE Robotics and Automation Letters (R-AL)
- 12th IFAC Symposium on Intelligent Autonomous Vehicles (IAV' 25)

- IEEE International Conference on Robotics and Automation (ICRA' 25, ICRA' 26)
- International Federation of Automatic Control (IFAC'23, IFAC'26)

Mentoring Activities

- [Ian Gao](#), Bachelor Research Project. Now at UNC Chaphill as an undergraduate.
- John Modl, [REU Program](#).
- [Matthew De La Rosa](#), [REU Program](#).
- [Andrew Chen](#), [REU Program](#). Now at [CMU](#) as a Master student.
- Zachary Palko, [REU Program](#).
- [Siwon Jo](#), Bachelor Research Project. Now at University of Pennsylvania as a Master student.
- [Mukul Mohan](#), Bachelor Research Project.

(last updated: Jun. 2026)