

Yuxiao Zhu

+1 (919) 423-0128 | yuxiao.zhu@duke.edu | yuxiaozhu.me

EDUCATION

Duke Kunshan University (DKU) & Duke University Dual Degree

Aug 2023 - May 2027

B.S. in Applied Math and Computational Sciences (Computer Science Track, by DKU),

Kunshan, China

B.S. in Interdisciplinary Studies (Applied Math and Computational Sciences; Computer Science, by Duke),

Durham, NC

- Cumulative GPA: 3.78/4.0 | Dean's List, 5 semesters (3 with Distinction)

PUBLICATIONS

- **Y. Zhu**, J. Li, Y. Dong, H. Li, X. Luo and X. Cheng, "Belief-Guided Interactive Perception for Manipulation in Clutter under Noisy Proprioception," Manuscript in preparation.
- **Y. Zhu**, J. Chen, X. Zhang, M. Guo and Z. Li, "DEXTER-LLM: Dynamic and Explainable Coordination of Multi-Robot Systems in Unknown Environments via Large Language Models," 2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Hangzhou, China, 2025, pp. 10182-10189, doi: [10.1109/IROS60139.2025.11247301](https://doi.org/10.1109/IROS60139.2025.11247301).
- J. Chen, **Y. Zhu**, A. Zhuo, X. Zhang, S. Zhang, G. Weng, X. Dong, M. Guo, Z. Li, "Melding LLM and temporal logic for reliable human-swarm collaboration in complex environments," in npj Robotics (Under Review). [arXiv](https://arxiv.org/abs/2505.18881)
- J. Chen, **Y. Zhu**, X. Zhang, B. Luo and M. Guo, "SLEI3D: Simultaneous Exploration and Inspection via Heterogeneous Fleets Under Limited Communication," in IEEE Transactions on Automation Science and Engineering, vol. 23, pp. 2339-2360, 2026, doi: [10.1109/TASE.2025.3643166](https://doi.org/10.1109/TASE.2025.3643166).
- X. Zhang, J. Chen, **Y. Zhu**, B. Luo and M. Guo, "CoCoPlan: Adaptive Coordination and Communication for Multi-Robot Systems in Dynamic and Unknown Environments," in IEEE Robotics and Automation Letters, vol. 11, no. 3, pp. 3270-3277, March 2026, doi: [10.1109/LRA.2026.3656769](https://doi.org/10.1109/LRA.2026.3656769).

RESEARCH EXPERIENCE

Undergraduate Researcher

Apr 2026 — Present

Duke University / DexLab

Durham, NC

- Supervised by Prof. [Xianyi Cheng](#)
- Research belief-guided interactive perception for contact-rich manipulation under noisy proprioception.
- Developed a temporal-joint Transformer that predicts nominal no-contact responses and computes uncertainty-calibrated proprioceptive residuals without force/torque sensors.
- Integrated learned residuals with action-relevant belief construction and online primitive-event search for contact-aware planning and replanning.

Visiting Undergraduate Researcher (Hybrid)

Dec 2023 — Mar 2026

School of Advanced Manufacturing and Robotics, Peking University

Beijing, China

- Supervised by Prof. [Meng Guo](#) and Prof. Zhongkui Li
- Proposed DEXTER-LLM and CoCoPlan for LLM/MILP-based dynamic task planning, communication-aware coordination, and heterogeneous multi-robot systems in unknown environments.
- Proposed SLEI3D for large-scale 3D exploration, inspection, and interaction using heterogeneous robotic fleets (UAVs/UGVs) under limited Line-of-Sight (LOS) communication.

PROJECTS

Leader, Development for Cooperative Aerial Robots Inspection (CARI) System

Apr 2024 — Apr 2025

- National College Student Innovation & Entrepreneurship Training Program (Dachuang), Project ID: 202416406003K

SKILLS AND AWARDS

- **Programming & Robotics:** Python, C++, PyTorch, MuJoCo, ROS, Unity; Transformer Time-Series Modeling, Proprioceptive Residual Estimation, Robot Manipulation, Multi-Robot Planning, MILP, Temporal Logic.
- **Awards:** [First Place](#) in the 1st Duke Kunshan University DeepRacer Self-driving Competition.