Yuxiao Zhu

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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: 3.8/4.0 | Dean's List, 5 semesters (3 with Distinction)

Publications

* Equal contribution.

- **Y. Zhu***, J. Li*, Y. Dong, M. Suhail, C. Yang, X. Luo, H. Li, B. Chen and X. Cheng, "CoPRE: Improving Sensitivity in Proprioceptive Contact Detection for Low-Cost Robot Arms," RSS/CoRL 2026 WS; ICRA 2027 under review. arXiv.
- **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," IEEE/RSJ IROS, 2025. DOI.
- Y. Zhang*, **Y. Zhu***, J. Yang, Y. Miao and B. Luo, "TacPilot: Does Touch Need to Be Everywhere?" CVPR 2027 under review. arXiv:2611.23804.
- 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:2605.07877.
- J. Chen, **Y. Zhu**, X. Zhang, B. Luo and M. Guo, "SLEI3D: Simultaneous Exploration and Inspection via Heterogeneous Fleets Under Limited Communication," IEEE Transactions on Automation Science and Engineering, 2026. DOI.
- 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," IEEE Robotics and Automation Letters, 2026. DOI.

Research Experience

Undergraduate Researcher Sep 2026 — Present
Duke Kunshan University / Edge Intelligence Lab *Kunshan, China*

- Co-led the lab's robotics group and mentored three undergraduates as they joined the TacPilot project.
- Co-designed TacPilot's separate gates for tactile feature updates and action correction. Integrated fingertip tactile sensing on OpenArm v2 for four physical tasks and led manuscript writing.

Undergraduate Researcher Apr 2026 — Present
Duke University / DexLab *Durham, NC*

- Led CoPRE from problem formulation through writing. Excluded recent observations from torque prediction to preserve contact signals and designed noise-weighted Jacobian aggregation to detect weak contact.
- Compared detection at matched false-alarm rates on ARX L5 and Unitree G1.

Visiting Undergraduate Researcher (Hybrid) Dec 2023 — Mar 2026
School of Advanced Manufacturing and Robotics, Peking University *Beijing, China*

- Led the design of DEXTER-LLM, including MILP task allocation and multi-rate replanning.
- Built SLEI3D's ROS stack, organized simulations with up to 48 robots, and helped evaluate seven physical robots.
- Helped implement CoCoPlan's joint task and communication scheduler and contributed to its real-robot demonstrations.
- Built a 14 × 16 m mock factory fire site and developed a tablet interface for human–robot rescue trials.

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

- **Skills**: Python, C++, PyTorch, MuJoCo, ROS, Unity; robot manipulation, multi-robot planning, MILP, temporal logic.
- **Awards**: First Place in the 1st Duke Kunshan University DeepRacer Self-driving Competition.