

Yang Xu

+86 18584810116 | admin@jason-xy.cn | jason-xy.cn/self

HKUST PhD Student | Robotics / Drone Autonomy / Robot Learning

Focused on end-to-end autonomy, multi-sensor fusion, and deployable robotics systems. Experience spanning sim-to-real policy learning, onboard perception, and embedded engineering.



EDUCATION

Hong Kong University of Science and Technology

Ph.D. in Electronic and Computer Engineering, School of Engineering

Sep 2025 - Present

Advisor: Prof. Shaojie Shen

Research focus: robot learning, with ongoing work on end-to-end micro-drone autonomy using sparse sensory inputs.

Hong Kong University of Science and Technology

MPhil in Intelligent Construction and Robotics, Division of Emerging Interdisciplinary Areas

Sep 2023 - Jun 2025

Advisor: Prof. Shaojie Shen

Research focus: radar-inertial odometry, robust visual-inertial estimation, and omnidirectional perception.

GPA: 3.87/4.30

University of Electronic Science and Technology of China

B.Eng. in Embedded Systems, School of Information and Software Engineering

Sep 2019 - Jun 2023

Advisor: Prof. Yong Liao

GPA: 3.87/4.00 | TOEFL: 106

SELECTED PROJECTS

Learning Safe and Agile Quadrotor Flight with Minimalist Principles

May 2025 - Present

- Trained an odometry-free reactive control policy that maps sparse ToF / optical-flow / IMU observations directly to attitude commands for micro-drone collision avoidance.
- Building the Isaac Lab + PPO pipeline with curriculum learning, system identification, domain randomization, and CBF-based safety filtering for sim-to-real deployment on a Crazyflie-class platform.

Incorporating Point Uncertainty in Radar SLAM

Nov 2023 - Oct 2024

First author; *RA-L*, 2025. ; Github: RIO

- Introduced point-uncertainty modeling in polar coordinates for 3D radar SLAM and integrated it into data association and back-end optimization.
- Developed an uncertainty-aware radar-inertial odometry pipeline with velocity-aided radar points and high-rate IMU, validated it on public and self-collected datasets.

Autonomous Flights Inside Narrow Tunnels

Jan 2024 - Sep 2024

Co-author; *T-RO*, 2025. ; Github: FINT, VINS-Multi

- Contributed to VINS-Multi, a robust asynchronous multi-camera-IMU estimator for autonomous flight in narrow tunnels using three RGB-D cameras and IMU.
- Developed front-end coordination and feature/frame allocation strategies for reliable RGB-D-inertial odometry under low-feature and camera-degradation conditions.

SELECTED PUBLICATIONS

- First author.** "Incorporating Point Uncertainty in Radar SLAM." *IEEE Robotics and Automation Letters (RA-L)*, 2025.
- Co-author.** "OmniNxt: A Fully Open-Source and Compact Aerial Robot with Omnidirectional Visual Perception." *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.
- Co-author.** "Autonomous Flights Inside Narrow Tunnels." *IEEE Transactions on Robotics (T-RO)*, 2025.

INDUSTRY EXPERIENCE

DJI — Flight System Intern

Jan 2022 - Jul 2023

S-level Employee Performance Assessment | 2023 Campus Recruitment SSP Offer

Engineering Efficiency Team (Leader: Norman.li)

- DevOps: CI pipeline & efficiency tools development and maintenance.
- Compilation system: Compilation acceleration (FlightSystem firmware 30min->5min). Compilation framework design.

Pre-research Team (Leader: yi.lin)

- Contributed to a proof-of-concept for autonomous landing on a moving vehicle at speeds of up to 30 km/h by implementing a relative position estimation on the DJI Mavic 3.

ACADEMIC SERVICE

Teaching Assistant, ELEC3210 Introduction to Mobile Robotics

Fall 2024

- Supported labs and student projects on mobile robot simulation, LiDAR ICP odometry, EKF-SLAM, and A* path planning.

Teaching Assistant, ELEC5660 Introduction to Aerial Robotics

Spring 2026

- Supported labs and course projects covering rigid-body dynamics, control, trajectory planning, sensor fusion, and vision-based state estimation for aerial robots.

HONORS

- ICRA 2024 Radar in Robotics Workshop Best Poster Award
- ICRA 2024 Future of Construction Workshop Best Research Award
- National Second Prize, National Undergraduate Electronic Design Competition, 2021

TECHNICAL SKILLS

- Robot Learning & Sim-to-Real: End-to-end policy learning for drone autonomy, with experience in reinforcement learning, curriculum learning, system identification, domain randomization, and safety-constrained deployment.
- Perception & State Estimation: Radar-inertial odometry, visual-inertial estimation, multi-sensor fusion, and robust perception for degraded or feature-poor aerial robotics scenarios.
- Robotics Systems & Deployment: C/C++ and Python development for embedded and robotic systems, with hands-on experience in ROS/ROS2, CUDA, Docker, CI/CD, and deployment on resource-constrained SoCs and MCUs.