Yuxiang Xie

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SUMMARY

- Undergraduate robotics researcher specializing in surgical autonomy, embodied AI, and intelligent manipulation.
- Deliver end-to-end robot simulations and perception pipelines balancing research rigor with product execution.

EDUCATION

The Chinese University of Hong Kong, Shenzhen — BEng Electrical and Computer Engineering (Sep 2024 – Present)

- GPA 3.82 / 4.0 (Top 5%); Dean's List; Undergraduate Research Awards recipient.
- Coursework includes robot planning & control, machine learning, computer vision, and systems engineering laboratories.

RESEARCH EXPERIENCE

Medical Robotics Lab, CUHK-Shenzhen — Research Assistant | Shenzhen, China

- Build autonomy and perception stacks for surgical manipulators under Prof. Fangxun Zhong and Prof. Yunhui Liu.
- Prototype suturing assistance and LiDAR-guided fleet coordination, delivering reproducible demos and evaluation metrics.

Peking University — Embodied AI Visiting Student | Beijing, China

- Collaborated with cross-lab cohorts on policy learning for embodied agents with emphasis on planning, control, and perception.
- Created knowledge summaries and talks reused by student robotics communities.

PROJECTS

Surgical Robot Autonomy Pipeline

- Fused learning-based perception with ROS 2 motion planning inside CoppeliaSim for collision-free trajectories in cluttered environments.
- Developed benchmarking harness measuring accuracy, latency, and recovery adopted by the research group.

Object Detection Driven Robot Arm Tracking

- Deployed customized YOLOv8 with TensorRT acceleration powering low-latency closed-loop tracking.
- Optimized inference-control loop to achieve responsive manipulation for high-speed targets.

Eye-to-Hand Pose Estimation & Stacking

- Delivered 6D pose estimation using an eye-to-hand camera, automating precise stacking workflows.
- Co-optimized perception latency and control accuracy to boost task reliability.

Monocular Endoscopic Depth Estimation

- Combined Depth Anything predictions with optical-flow refinement for millimeter-level depth recovery.
- Validated reconstruction accuracy against calibration phantoms for surgical research benchmarks.

LEADERSHIP & IMPACT

Independent Entrance Coaching Platform — Founder | China (Remote)

Built profitable guidance business connecting elite mentors with students, reaching RMB 80K+ monthly revenue.

Led 20+ mentor network, automated intake, and scaled growth through Rednotes and TikTok campaigns.

World Internet Conference (Wuzhen Summit) — Media & Communications Volunteer | Wuzhen, China

Produced photography, video edits, and PR assets expanding multi-channel audience reach.

Coordinated with media teams to streamline publication workflows under tight timelines.

HONORS & ACTIVITIES

Columbia University Honor Program Member.

Top Ten Students, Tongxiang Senior High School.

Language: Mandarin (native), English (IELTS 6.5).

Extracurricular: Level 9 Hard-tip Calligrapher; National Second-Class Athlete (Swimming); Member, Tongxiang Photographers Association.

TECHNICAL SKILLS

Programming: Python, C++, MATLAB, Lua, JavaScript/TypeScript.

Robotics: ROS 2, MoveIt 2, CoppeliaSim, PCL, 6D pose estimation, motion planning, trajectory optimization, robot control.

AI & Vision: PyTorch, OpenCV, YOLOv8, TensorRT, Depth Anything, perception pipeline design.

Tooling: Git, Notion, Figma, data visualization, rapid prototyping for education products.