Yuxiang Xie

Robotics · AI · Surgical Autonomy | Shenzhen, China | Email: 124090742@link.cuhk.edu.cn | Phone: +86 177 5827 9107 | GitHub: github.com/Peter-cuhk

SUMMARY

Robotics & AI engineer training at CUHK-Shenzhen (GPA 3.82 / 4.0, Top 5%) focusing on surgical robot autonomy and embodied intelligence.

Build end-to-end planning and perception systems, transforming lab research into reliable demos and community-facing products.

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 | 2024 – Present

Build autonomy and perception stacks for surgical manipulators under Prof. Fangxun Zhong and Prof. Yunhui Liu, uniting motion planning with learning-driven vision.

Prototype suturing assistance workflows and LiDAR-guided fleet coordination showcased in lab demos with reproducible evaluation metrics.

Peking University — Embodied AI Visiting Student | Beijing, China | 2024

Collaborated with cross-lab cohorts on policy learning for embodied agents, emphasizing planning, control, and perception.

Produced knowledge notes and talks that inform student robotics communities and course materials.

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) | 2022 – Present

- Built profitable guidance business connecting elite mentors with students, achieving RMB 80K+ monthly revenue.
- Led a 20+ mentor network, automated client intake, and expanded reach through Rednotes and TikTok growth funnels.

World Internet Conference (Wuzhen Summit) — Media & Communications Volunteer | Wuzhen, China | 2023

- Produced photography, video edits, and PR assets that expanded multi-channel audience reach.
- Coordinated with media teams to streamline publication workflows under tight event 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.