XUANWEI LIU

Email: xuanwei_liu0715@163.com | Homepage: https://evan040715.github.io/

EDUCATION BACKGROUND

Harbin Institute of Technology, Shenzhen (HITSZ)   *Sep. 2022-Jul. 2026*
BEng in Automation (GPA: 88.3/100)   *Shenzhen, China*
- **Major Coursework:** Automation Control Theory, System Modeling and Simulation, Signal Analysis and Processing, Introduction to Machine Learning, Electric Circuit, Probability Theory and Mathematical Statistics
- **Awards:** 2023/24 Third Prize Scholarship for Undergraduate Student (top15%), 2023/24 Outstanding Student (top 5%)

University of Oxford   *Aug. 2024*
*Visiting Student of Lady Margaret Hall (*Topic: Artificial Intelligence and Machine Learning)   *Oxford, UK*
- **Core modules:** Machine Learning, Deep Learning, and Computer Vision; **Grade:** A+.

RESEARCH EXPERIENCE

Harbin Institute of Technology, Shenzhen   *Jul. 2025- Sep. 2025*
Research Intern (Topic: Automated Detection and Segmentation of Head and Neck Tumors and Lymph Nodes Using nnU-Net)
- **Robust Data Pipeline:** Engineered a data harmonization and artifact-resilient ROI extraction scheme (combining LCC & multimodal registration) to mitigate label noise in PET/CT modalities.
- **Model Optimization & Validation:** Conducted ablation studies on nnU-Net backbones and loss functions (Dice-Focal); the optimized model achieved **80% Dice** and secured 18th in **HECKTOR2025**.

INTERNSHIP

Shenzhen Institute of Artificial Intelligence and Robotics for Society | *Research Intern*   *Nov. 2025 – Present*
- Developed a Safety-Critical Framework for Long-Horizon Manipulation (Isaac Lab): Implemented a **Sequential Dexterity** pipeline with sub-policy decomposition and forward initialization to solve high-dimensional exploration for KUKA-Allegro.
- Innovated Bi-Directional Policy Optimization: Utilized a Transformer-based **Feasibility Function** as an auxiliary reward to optimize upstream grasp poses for subsequent insertion feasibility
- Formulated Safety-Critical Gated Rewards: Designed a pose-alignment reward mechanism to enforce safety for fragile objects, resolving sparse reward issues and enabling autonomous failure recovery.

CET Electric Technology Inc. | *AI Software Intern*   *Jan. 2025-Mar. 2025*
- Architected End-to-End Observability Pipeline: Integrated **Phoenix** for granular token-level tracing and response evaluation of RAG systems. Reduced debugging latency by 40% and accelerated the iteration cycle of scalable LangChain agents.
- Optimized RAG Inference via Model Fine-tuning: Fine-tuned domain-specific LLMs (DeepSeek) using **SFT/LoRA** techniques. Outperformed baseline prompt engineering by significantly reducing token latency and improving context adherence for enterprise tasks.

PROJECT EXPERIENCE

Deep Q-Network-Based Reinforcement Learning — "Save the Prey" | Machine Learning Lead   *Sep. 2024-Dec. 2024*
- Formulated a multi-agent pursuit-evasion MDP with dense reward shaping and conducted rigorous hyperparameter optimization (e.g., annealing exploration schedule) on the DQN architecture, ensuring stable convergence in non-stationary scenarios.

Vision-Based Perception & Control for Mobile Robots | Team Leader   *Oct. 2024-Dec. 2024*
- Architected a closed-loop visual control framework on ROS. Designed a robust image processing pipeline to extract navigational features, ensuring precise trajectory tracking despite sensor noise and environmental variations.
- Developed latency-critical perception algorithms for dynamic obstacle detection, optimizing system throughput to achieve real-time decision-making in cluttered environments.

EXTRACURRICULAR ACTIVITIES

University Arts Troupe | *Director of the Modern Music Division*   *Sep. 2023–Aug. 2024*
Third Prize in the 2023 National Mathematical Modelling Contest for Undergraduate Students   *Oct. 2023*
Second Prize in the 15th National Mathematical Competition for Undergraduate Students   *Oct. 2023*

LANGUAGE & SKILLS

- **Language Proficiency:** English (fluent, IELTS 7.0), Chinese (native speaker)
- **Skills:** Python, C++, NLP(e.g.,Transformer,RNN/LSTM), Reinforcement Learning(e.g.PPO), Robotics Simulation(Isaac Gym/Sim), MATLAB, LaTeX, SolidWorks