Zecheng Zhu

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Education

Imperial College London, Bachelor in Electronic and Information Engineering Sep 2023 – Jun 2026

- Grade: 77.8/100 (First Class Honors) – Top 5 % and Dean's List for all years
- **Coursework:** Robotic, Machine Learning, Deep Learning, Control System, Computer Vision, Discrete Mathematics

Research Experience

University of California, Berkeley, Hybrid Robotic Lab – Supervisor: Dr. Zhongyu Li Jun 2025 – Current

- Developing GenlocoV2: A Transformer-based generalized locomotion controller for morphology & topology-agnostic policy learning across diverse robotic embodiments (quadrupeds, bipeds, and humanoids)
- Implemented multi-robot training pipeline with procedurally generated morphological Topological variations across distinct robot types with randomized link sizes, masses, and joint configurations
- Designed novel robot representation architecture utilizing graph-based joint descriptions with positional embeddings and incorporating joint relative positions.
- Developing offline training framework combining Behavior Cloning (BC) distillation and DAgger with expert trajectory relabeling.

Zhejiang University, Robotic Lab – Supervisor: Professor Yue Wang Jun 2024 – Aug 2024

- Reproduced the methodologies from the paper Adaptive Planner Parameter Learning from Reinforcement, aimed at enhancing mobile robot navigation by adaptively tuning parameters in reinforcement learning environments.
- Used the Twin Delayed Deep Deterministic (TD3) algorithm to train an adaptive controller, achieving major improvements in navigation. Specifically, with the DWA algorithm, the controller increased the success rate from 72% to 89.47% and cut average navigation time from 76.64 seconds to 50.92 seconds across 300 simulations world in Gazebo.

Industry Experience

Embodied AI Engineer *Internship* , Lightwheel AI – Shanghai, China Jul 2025 – Current

- Contributed to Lwlab, a large-scale robotics simulation framework for daily-life task training: Migrated reinforcement learning pipelines from Isaac Lab to Lwlab's flexible configuration system, enabling support for diverse robots (Untree G1/PandaOmron), VR/keyboard teleoperation, and custom scene layouts
- Improved loco-manipulation capabilities for humanoid robots in Lwlab: Developed velocity-tracking policies for bipedal locomotion by decoupling upper/lower-body control, optimizing gait stability through reward-shaping and symmetric/smoothness losses

Projects

Autonomous Campus Tour Guide Robot with Vision, Voice, and Cloud Integration
Won the **Best Robotic Project Prize** at Imperial College for second year cohort

- Engineered self-balancing mobility using dual-loop PID/LQR control achieving <15cm positional accuracy and 3s disturbance recovery
- Developed TD3 reinforcement learning in Gazebo with BARN dataset for trajectory following.
- Integrated YOLOv8 Nano vision system on RK3588 achieving >90% person-tracking accuracy at <100ms latency
- Built cross-platform Flutter app for robot control with real-time weather sensing (GY-39/GPS)
- Deployed AWS EC2 cloud infrastructure with JWT-secured REST API, PostgreSQL, and ReactJS dashboard
- Implemented RAG-enhanced voice assistant using OpenAI API with on-device MP3 playback via ESP32 I2S

Technologies

Languages: Python, C++, C, SQL, SystemVerilog

Technologies: Isaac Sim/Gym/Lab, Pytorch, ROS, Linux, Git, Embedded Platforms(ESP/STM)