Jiankai Wang

wang.jiankai@outlook.com | +44 7421 242 863 | *https://www.linkedin.com/in/jiankai-wang*

PROFILE

Research Assistant at Imperial College London with 4+ years of research in machine learning and robotics. Specialised in reinforcement learning, world models, and high performance computation.

Education

Imperial College London Sept 2024 – Sept 2025
MSc Computing, Adaptive and Intelligent Robotics Lab (AIRL) Advisor: *Prof. Antoine Cully*

Nanjing University of Aeronautics and Astronautics Sept 2017 - Apr 2024
MEng Mechanical Engineering / BEng Power Engineering (First class honours)

Employment

Imperial College London Oct 2025 - Present
Research Assistant in Robot Learning and Fast Recovery, Department of Computing

ZEEKR Automotive May 2023 - Sep 2023
Project Management Intern, Department of Vehicle Platform Integration

Project Experience

***TRUSTLINE*: Robot Learning for Anomaly Recognition and Introspection** Oct 2025 – Present

- Delivered a generalised anomaly recognition and introspection system for critical infrastructure that detects anomalies using only CCTV-quality monitoring and without direct connection to the system, enabling retrofitting and cyber-security.
- Proposed paper "*Adaptive World-Models for Anomaly Recognition(AWARE): A Unified Framework for Robot Dynamics Prediction and Introspection*", submitted to ICML 2026 (under peer review).
- Trained an adaptive world-model in MuJoCo by conditioning on estimated dynamics, attaining average joint error of less than 3 degrees with a two second horizon.
- Deployed the system on robot cranes and quadruped robots for production, achieving 77% average precision in anomaly recognition with CCTV-quality cameras and over 96% success rate in locating the impaired motor.

Stochastic Quality-Diversity for Fast Damage Recovery in Legged Robots Jan 2025 – Sept 2025

- Reduced post-damage recovery time for legged robots to under 5 trials by developing a stochastic Quality-Diversity (QD) framework, significantly improving adaptability to hardware failures.
- Realised large QD parallelisation in JAX(CUDA), achieving 100× speedup in policy training, enabling large collection of both high-performing and distinct behavioural policies with limited evaluation budget.

Multi-Agent RL–Based Energy Optimisation for Hybrid Electric Vehicles Jan 2023 – Apr 2024

- Proposed a TCN-based driving condition forecasting model, achieving a 23% improvement in forecast accuracy and enabling proactive energy allocation decisions.
- Developed a distributed, driving condition-aware agent adaptive switching mechanism that dynamically selects between specialised agents based on real-time driving scenarios, achieving a 29% reduction in vehicle energy consumption under real stochastic driving conditions.

Skills and Interests

Programming Languages: Python, C++, C, Java, PostgreSQL, MATLAB

Platforms and tools: PyTorch, JAX, Mujoco, ROS2, Isaac Sim, OpenCV, Docker, Linux, Git