Xunlan Zhou

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EDUCATION

Nanjing University Nanjing, China
Bachelor of Science in Intelligent Science and Technology Sept 2023 – Present
University of California, Berkeley; *Visiting Student* Sept 2025 – Present

INTERESTS

Reinforcement Learning; Robotics; Model-Based RL and World Models; Multi-Agent Systems

PUBLICATION

- **Zhang, S.**, *et al. Leveraging Conditional Dependence for Efficient World Model Denoising.* NeurIPS 2025. (Co-author)
- **Zhou, X.**, *et al. MARVL: Multi-Stage Guidance of Reinforcement Learning via Fine-Tuned Visual Language Models.* Manuscript in preparation. (First author)
- **Zhao, H.**, *et al. UDON: Uncertainty-weighted Distributed Optimization for Multi-Robot Neural Implicit Mapping under Extreme Communication Constraints.* Under review at ICRA 2026. (Co-first author)

RESEARCH EXPERIENCE

Robotics Research, ICON Lab Berkeley, CA, USA
Core Member, University of California, Berkeley May 2025 – Present

- Led the full experimental pipeline for **multi-robot SLAM with uncertainty modeling**, including theoretical design, implementation, and real-robot evaluation. Developed and tested uncertainty-aware graph optimization modules that improved system stability under dynamic conditions
- Contributed to a project **co-funded by Google DeepMind and BAIR** on **safe and efficient human – humanoid collaboration**. Designed intent-aware perception modules integrating locomotion and bidirectional handovers, enabling humanoid robots to interpret and adapt to human actions

Reinforcement Learning Research, LAMDA Nanjing, China
Core Member, Nanjing University Jan 2024 – Present

- Developed conditional world models for efficient reinforcement learning. Derived theoretical formulations, implemented experiments, and analyzed results to enhance model stability and sample efficiency
- Proposed a multi-stage VLM-guided reinforcement learning framework that enhances spatial grounding through scene-view disentanglement; explored goal projection and adaptive reward thresholding to improve policy stability, robustness, and sample efficiency.

Low-Level Vision Research, Visual Enhancement Group Nanjing, China
Core Member, Nanjing University July 2024 – Present

- Designed a deep learning framework disentangling illumination and scene color for white balance correction
- Developed a diffusion-based video denoising system combining optical flow estimation and attention mechanisms; constructed datasets and optimized temporal consistency

PROJECT EXPERIENCE

Sparse Industrial Time Series Forecasting (Siemens-Sponsored Research) Nov 2024 – Present

- Proposed a framework integrating data augmentation, non-linear labeling, and hybrid feature extraction for sparse industrial time series prediction. Combined physics-based and autoencoder-derived representations to improve forecasting accuracy

Admission LLM Development, "Little Blue Whale" Mar 2024 – Jun 2024

- Cleaned large-scale admission Q&A data, built a BERT-based vector database, and applied Bi-Kmeans and DBSCAN clustering for semantic grouping. Implemented retrieval-augmented generation (RAG) on Qwen1.5 to improve response precision

Data-Driven Dorm Allocation System May 2025 – Sep 2025

- Built a predictive model for dorm allocation using hybrid LSTM – Transformer architecture. Encoded risk events with BERT embeddings, quantified temporal decay effects, and optimized allocation fairness across student groups

Personalized AI Travel Planning System, "Zhiyou Wujie" Mar 2025 – Present

- Co-led the design of a neural-symbolic travel assistant integrating real-time APIs and a domain knowledge base. Implemented an LLM-driven planning pipeline that generates adaptive, constraint-aware itineraries for users

SKILLS

Campus Experience: NOVA Intelligent Decision Studio, senior member; Future Investor Club, core member; IT Support Association, core member
Technical Skills: Python, C, R, SQL, MATLAB; proficient in Microsoft Office, LaTeX, Photoshop, Premiere
Languages: Chinese (Native), English (Proficient), French (Basic)