李雨峰

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24 | Male | A member of the Communist Youth League

Basic information

University of Electronic Science and Technology of China (September 2020-June 2024)
Software Engineering
Professional Ranking: 1/202

Shanghai Jiaotong University (September 2024-June 2029)
Research Direction: Body Intelligence, Optimal Transmission, Generated Model
Tutor: Professor Yan Junchi

Beijing Zhongguancun College (September 2024-June 2029)

research direction: physical intelligence, dexterous operation, automated chemical laboratory

Tutor: Researcher Chen Kai (Head of the Department of the College)

HONORS & AWARDS

National scholarships	2020-2021学年 2022-2023学年
Computer design contest national second prize	2022年9月
Outstanding graduates of Sichuan Province	2024年6月

SELECTED RESEARCH

SafeLab: An Interactive High-Fidelity Benchmark for Embodied Safety in Scientific Robotics

In this paper, SafeLab, a high-fidelity generative simulation safety learning benchmark for chemical laboratories, is proposed, combined with LLM programmed task synthesis, automated expert demonstration acquisition and interactive RL post-training, so that VLA intelligence can learn to actively correct errors under the constraint of zero fault tolerance precision operation and increase the success rate by 37%. I am responsible for automated expert data acquisition, benchmarking and post-RL training.

Optimal Flow Transport and its Entropic Regularization: a GPU-friendly Matrix Iterative Algorithm for Flow Balance Satisfaction

This paper extends its application by introducing entropy regularization to address the limitations of traditional optimal transmission (Optimal Transport) when dealing with more complex graph structures, especially considering the traffic balance constraints of nodes and edges. I am responsible for the whole algorithm design, code development and experiment

REFRAME: Reflective Surface Real-Time Rendering for Mobile Devices

The standard proposes a REFRAME method, which solves the shortcomings of the existing method in real-time and reflective surface modeling by realizing the real-time new perspective synthesis of reflective surfaces on mobile devices, and achieves SOTA on the rendering of high-light objects on the mobile end. I am responsible for the design and construction of real-time rendering pipeline for mobile devices.

Towards Practical Large-scale Dynamical Heterogeneous Graph Embedding: Cold-start Resilient Recommendation Download P DF

In this paper, a two-stage dynamic graph embedding framework is proposed, combining the scalable heterogeneous composition Transformer(HetSGFormer) with the lightweight CPU incremental learning algorithm (ILLE) to achieve cold-start robustness, real-time update and significant performance improvement in large-scale recommendation systems.

Rsync: Reward-Manifold Driven Adaptive Synchronization for Sample-Efficient Real-World Reinforcement Learning

In this paper, the Rsync(Reward-Manifold Driven Adaptive Synchronization) framework is proposed, which realizes data-driven

dense reward shaping by learning potential successful reward manifolds from various successful demonstrations, and adaptively adjusts the synchronization rhythm of the target network according to the local geometry of the manifold, thus improving the RL training efficiency to obtain a robust strategy within 15 minutes at the fastest time in long-range real robot tasks with rich contact.

GEARS: Seeing Geometry, Diffusing Actions for Zero-Shot Sim-to-Real Dexterous Manipulation

In this paper, the GEARS unified framework is proposed, combined with monocular RGB learning texture-independent geometric representation and diffusion action modeling, to alleviate the difference between visual domain offset and contact dynamics, to achieve chemical laboratory zero sample simulation to real dexterous control;

GuidedVLA: Specifying Task-Relevant Factors via Plug-and-Play Action Attention Specialization

This paper proposes a GuidedVLA to decouple object pointing, spatial geometry and timing skill factors by specifying the attention head of the action decoder and introducing auxiliary supervision, and to suppress pseudo-correlation over-fitting and improve the cross-domain success rate of simulation and real machine. I am responsible for the real machine experiment and ablation evaluation.

Efficient Packaging Line Object Counting by Cross-frame Association with Wavelet Convolutions and Trajectory Compensation

In this paper, an enhanced YOLO method (WT-YOLO) based on wavelet transform convolution is proposed to improve the detection accuracy in the packaging pipeline data set. WT-YOLO use wavelet transform convolution to expand the receptive field of the network, thereby capturing spatial and frequency domain information and enhancing the response to low-frequency shape signals

PUBLICATIONS

F Bai *, **Y Li ***, R Wu, P Wang, Y Wang, B H Zhu, Y Wang, T Chou, J Gao, R Zhu, Y Wen, Y Yang, Y Chen al. SafeLab: An Interactive High-Fidelity Benchmark for Embodied Safety in Scientific Robotics (ICML 2026)
C Ji, **Y Li**, Y Liao al. REFRAME: Reflective Surface Real-Time Rendering for Mobile Devices(ECCV 2024)

L Shi, **Y Li**, K Zeng, Y Tu, J Yan al. Optimal Flow Transport and its Entropic Regularization: a GPU-friendly Matrix Iterative Algorithm for Flow Balance Satisfaction(ICLR 2025)

X Jia, B Yang, Z Ge, X Nie, Y Zhou, C Fan, **Y Li**, Y Chai, C Jing, Z Liang, Q Bu, H Cao, C Wu, Q Li, Z Yang, C Zhang, H Li, Z Wu, J Yan, Y-G Jiang. GuidedVLA: specifying Task-Relevant Factors via Plug-and-Play Action Attention Specialization (RSS 2026)

F Bai, T Chou, **Y Li**, Y Li, Y Wang, Y Mao, H Zhang, Y Wang, R Zhu, Y Wen, Y Yang, Y Chen al. GEARS: Seeing Geometry, Diffusing Actions for Zero-Shot Sim-to-Real Dexterous Manipulation(submitted to ECCV 2026)

Y Li, F Bai, T Chou, Q Li, J Gao, J Yan. SafeTransport: A Unified Capacity-Flow View of Safe Reinforcement Learning (submitted to NeurIPS 2026)

Y Cai, F Bai, T Yu, Y Pu, Y Mao, Y Wang, T Chou, **Y Li**, Y Li, Y Yang, H Zhang, M Li, Y Chen al. Rsync: Reward-Manifold Driven Adaptive Synchronization for Sample-Efficient Real-World Reinforcement Learning (submitted to NeurIPS 2026)

L Wei, Y Zhu, **Y Li**, M Qian, X Zuo, B Chen, S Liang, Z Lin, J Yan al. Efficient Packaging Line Object Counting by Cross-frame Association with Wavelet Convolutions and Trajectory Compensation(IEEE Access 2025)

EXPERIENCE

- **Huawei — Recommendation System Algorithm Research Intern | Mar 2025 – Sep 2025**

  Built a deployable two-stage dynamic graph embedding system (HetSGFormer + CPU-based ILLE) enabling real-time incremental updates on billion-scale graphs; improved embedding refresh timeliness by 83.2% and delivered +6.11% + 3.22% Advertiser Value lift via online tests.
  Beijing PsiBot Technology — Research Intern, Embodied Intelligence | Sep 2025 – Present

  Built SafeLab, a safety-constrained chemical-lab VLA benchmark with LLM-based task synthesis and automated expert demos (6,000+ trajectories; 63 assets / 64 tasks).
  Shipped a residual RL post-training pipeline optimizing Safe Success Rate (SSR) under zero-tolerance constraints, improving safe task success by up to 37%.