

Yu Li

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Education

George Washington University <i>Ph.D. in Electrical and Computer Engineering, GPA:4.0/4.0</i>	Washington, D.C. <i>Aug 2025 – Present</i>
Wuhan University, Hongyi Honor College <i>B.Eng. in Microelectronics Science and Technology, GPA:3.87/4.0</i>	Wuhan, China <i>Sept 2021 – Jun 2025</i>

Research Experiences

Mobile Intelligence Lab 🌐, George Washington University Topic: Post-training, RL, Reasoning. <i>Advisor: Prof. Tian Lan & Prof. Zhengling Qi</i>	Washington, D.C. <i>August.2025 – Present</i>
Artificial General Intelligence Lab 🌐, Westlake University Topic: Generative AI. <i>Advisor: Prof. Chi Zhang</i>	Hangzhou, China <i>March.2025 – June.2025</i>
Cyber-Physical Systems Lab 🌐, UC Irvine Topic: Multimodal Uncertainty Fusion. <i>Advisor: Prof. Mohammad Al Faruque</i>	Irvine, CA <i>June.2024 – Oct.2024</i>

Selected Projects

Contrastive GRPO: Self-Conditioning with Variance-Reduced Estimation <i>Reformulating Group Relative Policy Optimization from a contrastive learning perspective, integrating self-conditioning mechanisms with variance-reduced gradient estimation to improve training stability and sample efficiency in LLM alignment.</i>	<i>Oct. 2025 – Jan. 2026</i>
Chain to Tree Reasoning: Self-Rectification for Agent Policy Optimization <i>Proposing a hierarchical policy optimization framework that combines chain-of-thought reasoning with tree-structured learning, enabling self-rectification and policy grafting for multi-turn agent interactions.</i>	<i>Sep. 2025 – Jan. 2026</i>
Unlocking Implicit Self-Reflection in Preference Optimization for LLM Alignment 🌐 <i>Leveraging implicit preference information within preference pairs to establish a self-improvement mechanism, generalizing the theoretical foundation of existing preference optimization methods to enhance LLM alignment.</i>	<i>Jul. 2025 – Nov.2025</i>
Aligning LLMs with Finite State Machine for Multi-turn Verilog Code Generation <i>Enabling LLMs to learn state transition logic of finite state machines through structured alignment, constructing a multi-turn generation paradigm for Verilog code synthesis.</i>	<i>Sep. 2025 – Nov.2025</i>
CRAFT-LoRA: Content-Style Personalization via Rank-Constrained Adaptation <i>Enhancing content-style LoRA decomposition through rank-space constrained fine-tuning, and achieving personalized image generation via prompt mapping and asymmetric CFG for style-content LoRA fusion.</i>	<i>Apr. 2025 – Jul. 2025</i>
Prada: Black-Box LLM Adaptation with Private Data on Devices 🌐 <i>Achieving efficient black-box LLM adaptation on edge device systems through probability differential methods while robustly preserving data privacy.</i>	<i>Jan. 2025 – Apr. 2025</i>

Publications

C=Conference, J=Journal, †=Equal Contribution

- [C.1] D. Chang, P. Xue, Y. Li *et al.* **Calibrating and Rotating: A Unified Framework for Weight Conditioning in PEFT.** *The 40th Annual AAAI Conference on Artificial Intelligence (AAAI)*, 2026.
- [C.2] Y. Li, D. Chang, X. Xiao. **KG-SAM: Injecting Anatomical Knowledge into Segment Anything Models via Conditional Random Fields.** *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2026.
- [C.3] Y. Li†, D. Chang†. **DLORA-TrOCR: Mixed Text Mode Optical Character Recognition Based On Transformer.** *International Conference on Neural Information Processing (ICONIP)*, 2024.
- [C.4] Y. Li, Y. Hu, J. Chen *et al.* **ECG Classification with Dual Models: XGBoost Voting and Deep Learning with Attention.** *International Conference on Advanced Computer Technology and Electronics*, 2023.
- [J.1] Y. Li, J. Huang *et al.* **Dual branch SAM-Transformer Fusion Network for Accurate Breast Ultrasound Image Segmentation.** *Medical Physics*, 2025.
- [J.2] Y. Li, D. Chang *et al.* **SfMDiffusion: Self-supervised Monocular Depth Estimation in Endoscopy Based on Diffusion Models.** *International Journal of Computer Assisted Radiology and Surgery*, 2025.
- [J.3] S. Lv, S. Zeng, Y. Li *et al.* **Local Optimum Time-Reassigned Synchrosqueezing Transform for Bearing Fault Diagnosis of Rotating Equipment.** *IEEE Sensors Journal*, 2024.

Honors & Scholarships

- **Innova International Exchange Scholarship**, 6 recipients university-wide. *2024*
- **Innova Excellence Scholarship**, Top 3%, twice. *2023, 2024*
- **First-Class Scholarship**, Top 5%, three times. *2022, 2023, 2024*

Skills

- **Languages:** English (TOEFL 110), Chinese (Native), Japanese (N5)
- **Programming:** Python, C/C++, Matlab, Verilog
- **Tools & Platforms:** Ubuntu, Docker, Pytorch, Tensorflow, Git, Cadence