

Haoyu Li

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HaoyuLi-Nova

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EDUCATION

• Wuhan University

Bachelor of Engineering in Computer Science

Sept. 2023 – June 2027

Wuhan, China

◦ **GPA: 91.75/100**

◦ **Core Courses:** Data Structures (97), Algorithm Design & Analysis (92), Computer Graphics (92), Fundamentals of Software Construction (94), Advanced Mathematics (96), Probability Theory and Statistics (92).

PUBLICATIONS & MANUSCRIPTS

• **S³Mamba-Pan: Spectral-Spatial-Scale Mamba With Frequency-Decoupled Dual-Stream for Pansharpening.** Zishun Song, Yao Zhang, **Haoyu Li**, et al. *IEEE TGRS*

• **FedMental: Topology-Aware Federated Prototype Learning for Polymorphic Multimodal Psychiatry.** **Haoyu Li (First Author)**, et al. *Accepted at ECCV 2026*.

• **PsycheAgents: A Multi-Modal Agentic Framework for Psychiatric Differential Diagnosis.** **Haoyu Li (First Author)**, et al. *Under review at npj Digital Medicine*.

• **PsyCare: A Multi-Dimensional Multimodal Benchmark for Major Psychiatric Disorder Recognition.** **Haoyu Li (Second Author)**, et al. *Under review at Nature Mental Health*.

• **ChronoRect: Dual-Time Rectified Flow for Clinically Useful Medical Time-Series Generation.** **Haoyu Li (First Author)**, et al. *Under review at npj Digital Medicine*.

RESEARCH EXPERIENCE

• MARS Lab, Wuhan University

Research Assistant (Advisor: Prof. Mang Ye)

Apr. 2025 – Present

Wuhan, China

- Worked on multimodal AI under heterogeneous, non-IID, and privacy-sensitive clinical settings, focusing on representation alignment, prototype learning, and robust evaluation across institutions.
- Designed interpretable reasoning pipelines that decompose evidence extraction, symptom grounding, and decision-making into modular components, emphasizing transparent multimodal diagnosis rather than black-box prediction.
- Contributed to benchmark construction and data governance, including clinical data curation, de-identification, protocol design, and privacy-aware release preparation for multimodal medical AI research.

• Intelligent Interface Center, Harbin Institute of Technology

Research Intern (Advisor: Prof. Tiejun Zhao)

Dec. 2025 – Present

Remote

- Contributed to efficient visual architecture design for remote-sensing image fusion, working with frequency-aware decomposition, state-space modeling, and adaptive feature recalibration.
- Implemented flow-based generative modeling for clinical time-series synthesis, strengthening hands-on experience with generative model training, fidelity evaluation, and empirical privacy analysis.

SELECTED PROJECTS

• Diffusion Models from Zero to Hero

Creator | PyTorch, Diffusers, Jupyter Notebook, Open-Source Course

Oct. 2025 – Present

[Project Link](#)

- Created a Chinese hands-on diffusion-model course covering DDPM, DDIM, Diffusers, Stable Diffusion, CFG, LoRA, ControlNet, SDXL, DiT, Flow Matching, and video generation.
- Built structured learning roadmaps, runnable notebooks, documentation pages, environment setup notes, and troubleshooting/security guidelines to help learners progress from diffusion fundamentals to reproducible generative-model practice.

• Happy-LLM: Building Large Language Models from Scratch

Aug. 2025 – Present

Core Contributor | Datawhale, LLM Training, SFT/PEFT, Preference Alignment

[Project Link](#)

- Contributed to **Happy-LLM**, a **30k+ star** open-source tutorial project for systematically learning and implementing large language models from first principles.
- Helped organize content around an end-to-end LLM training pipeline, connecting data preparation, model adaptation, training objectives, supervised fine-tuning, PEFT, and preference alignment.

• SkyArm-VLA: Embodied Robotic Arm Manipulation

Apr. 2026 – June 2026

Developer | Vision-Language-Action, LeRobot, Robotic Manipulation, Embodied AI

[Project Link](#)

- Built a robotic-arm VLA project around **LingBot-VLA**, adapting a pretrained vision-language-action model to a custom desktop manipulation setting and connecting language-conditioned perception with executable robot actions.
- Completed the post-training workflow from **LeRobot** data collection, camera/robot-state alignment, action-space mapping, and action-expert training to open-loop evaluation and WebSocket-based remote inference deployment.

• CyberMars: Intelligent CyberDog Robotics Control

June 2025 – Aug. 2025

Core Developer | Python, ROS, Computer Vision, Reinforcement Learning

[Project Link](#)

- Built an autonomous robotics control framework for Xiaomi CyberDog, integrating ROS-based task orchestration, real-time visual perception, lane following, QR/Marker recognition, and obstacle-aware navigation for goods-delivery missions.
- Improved locomotion and navigation robustness through closed-loop perception-control tuning and motion-policy optimization, contributing to a **National Third Prize** in the National Computer System Capability Competition.

COMPETITIONS & HONORS

- **National Third Prize**, National Computer System Capability Competition (2025)
- **Central-South Regional First Prize**, National Undergraduate Computer Design Competition (2025)
- **Hubei Province Second Prize**, National College Student Mathematics Competition (2025)
- **Honorable Mention**, Mathematical Contest in Modeling / Interdisciplinary Contest in Modeling (MCM/ICM) (2025)
- **Wuhan University Merit Student** (2025)
- **Meritorious Student Leader**, Wuhan University (2025)
- **Project Approved**, National College Students' Innovation and Entrepreneurship Training Program (2026)

LEADERSHIP & SERVICE

• Wuhan University

Sept. 2023 – Present

Class Monitor; Committee Member, External Liaison Department

Wuhan, China

- Led a class of **31 students** and coordinated academic, administrative, and community affairs; organized **16 themed activities** across class, college, and inter-college levels to strengthen student engagement and collective cohesion.
- Facilitated **2 campus-enterprise collaborations** and multiple university-wide events reaching **5,000+ students**; recognized as a **Meritorious Student Leader** and **Outstanding Volunteer** for leadership, coordination, and service contributions.

SKILLS

- **Programming:** Python, C++, Java, C#, Go, SQL
- **AI/ML:** PyTorch, Diffusers, scikit-learn, diffusion models, rectified flow, multimodal learning, federated learning, state-space models
- **Systems & Engineering:** Linux, Git, Docker, ROS