Xin Li

AI Researcher | Ph.D. Student

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Profile

I am a Ph.D. student and LLM researcher focused on building end-to-end training pipelines—data curation, SFT, and RL—with rigorous evaluation. My current work targets formal, verifiable reasoning for engineering automation (e.g., Dafny) and includes creating WirelessMathBench (ACL Findings 2025). Previously at MSRA, MEGVII, and Gausium Robotics, I led perception projects from prototype to deployment.

Education

2025 – 2029 (Expected) **Nanyang Technological University**, Singapore
Doctor of Philosophy, Electrical and Electronic Engineering
Advisor: Prof. Chau Yuen (IEEE Fellow)
Research Focus: Large Language Models for Engineering Automation

2018 – 2021 **Peking University**, Beijing, China
Master of Engineering, Electronics and Communication Engineering
Thesis: Leveraging Geometric Regularities for Robust Visual-Inertial Odometry

2014 – 2018 **Northeastern University**, Qinhuangdao, China
Bachelor of Engineering, Measurement and Control Technology

Selected Publications

(indicates equal contribution; see Google Scholar for complete list)*

Large Language Models

Technical Report 2025 **Re:Form—Reducing Human Priors in Scalable Formal Software Verification with RL in LLMs: A Preliminary Study on Dafny**
Chuanhao Yan*, Fengdi Che*, Xuhan Huang*, Xu Xu*, **Xin Li***, Yizhi Li*, Xingwei Qu*, Jingzhe Shi, Zhuangzhuang He, Chenghua Lin, Yaodong Yang, Binhang Yuan, Hang Zhao, Yu Qiao, Bowen Zhou, Jie Fu
[arXiv]

ACL 2025 Findings **WirelessMathBench: A Mathematical Modeling Benchmark for LLMs in Wireless Communications**
Xin Li, Mengbing Liu, Li Wei, Jiancheng An, Merouane Debbah, Chau Yuen
Findings of the Association for Computational Linguistics (ACL), 2025
[Project Page] [Code]

Wireless Communications & Signal Processing

ML4RS@ICLR 2025 **Onboard Terrain Classification via Stacked Intelligent Metasurface-Diffractive Deep Neural Networks**
Mengbing Liu, **Xin Li**, Jiancheng An, Chau Yuen
ICLR Workshop on Machine Learning for Remote Sensing, 2025
[Project Page]

ICASSP 2025 **TransPathNet: A Two-Stage Framework for Indoor Radio Map Prediction**
Xin Li, Ran Liu, Saihua Xu, Sirajudeen Gulam Razul, Chau Yuen
IEEE International Conference on Acoustics, Speech and Signal Processing, 2025
[Project Page] [Code]

IEEE WCL **Deep Learning-based Channel Estimation for Double-RIS Aided Massive MIMO System**
Mengbing Liu, **Xin Li**, Boyu Ning, Chongwen Huang, Sumei Sun, Chau Yuen
IEEE Wireless Communications Letters, 2022

Robotics & Computer Vision

IEEE RA-L **Co-planar Parametrization for Stereo-SLAM and Visual-Inertial Odometry**
Xin Li*, Yanyan Li*, Evin Pinar Örnek, Jinlong Lin, Federico Tombari
IEEE Robotics and Automation Letters (RA-L), 2020
[arXiv] [Code]

IROS 2020 **Leveraging Planar Regularities for Point Line Visual-Inertial Odometry**
Xin Li*, Yijia He*, Jinlong Lin, Xiao Liu
IEEE/RSJ International Conference on Intelligent Robots and Systems, 2020

IEEE Sensors Journal **PVI-DSO: Leveraging Planar Regularities for Direct Sparse Visual-Inertial Odometry**
Bo Xu, **Xin Li**, Jingrong Wang, Chau Yuen, Jiancheng Li
IEEE Sensors Journal, 2023

Work Experience

2024 – 2025 **Nanyang Technological University**, *Research Assistant*, Singapore.
Advisor: Prof. Chau Yuen
Projects: Pioneered the application of LLMs to solve complex mathematical problems in wireless communications, creating the first comprehensive benchmark (WirelessMathBench) for evaluating LLMs in this domain. Developed advanced robotic perception systems integrating deep learning for real-time dense 3D reconstruction.

2022 – 2024 **Gausium Robotics**, *SLAM Algorithm Engineer (Project Lead)*, Singapore.
Led a team of 5 engineers in developing a hierarchical visual localization system for large-scale environments, achieving 95% localization accuracy across 100,000+ sq.m. spaces. Architected real-time map update modules processing 10+ FPS on embedded systems using compact neural networks. Deployed solutions in 1000+ commercial robots worldwide.

2020 – 2021 **Microsoft Research Asia (MSRA)**, *Research Intern*, Beijing, China.
Mentors: Dr. Yang Liu & Dr. Yizhong Zhang
Engineered a multi-sensor fusion system integrating RGB-D cameras and IMU data for large-scale indoor mapping. Generated high-fidelity vectorized maps of 10,000+ sq.m. supermarkets with sub-meter accuracy.

2019 – 2020 **MEGVII Technology**, *Research Intern*, Beijing, China.
Mentor: Dr. Yijia He
Developed a real-time monocular Visual-Inertial Odometry system leveraging heterogeneous features, achieved semi-dense 3D mesh reconstruction at 30+ FPS. First author paper accepted at IROS 2020.

Skills

Programming	C++, Python, ROS/ROS2, PyTorch
AI/ML	Large Language Models, Deep Learning, Computer Vision, Reinforcement Learning, Diffusion Model
Robotics	SLAM, Visual-Inertial Odometry, 3D Reconstruction, Sensor Fusion, Path Planning
Language	Chinese (native), and English (fluent)

Services

Reviewers	NeurIPS (2024, 2025), ICLR (2025, 2026), ICML (2025), AAAI (2026), AISTATS (2025), SIGGRAPH (2025), IROS (2021, 2022), ICRA (2022, 2023, 2025), IEEE RA-L, IEEE TNNLS
Workshop	AIR4D@IROS 2025 (Organizer)

Awards

2025	OpenAI Researcher Access Program
2025	PREMIA Best Student Paper Finalist
2025	NTU Research Scholarship (Full Ph.D. Funding)