Name: Ming Lu
Data of Birth: 1991-09-02
Tel: +86 18622816139
E-mail: lu199192@gmail.com website: https://lu-m13.github.io/

I am a research scientist at AI Research Lab (AIRL), Intel Labs, where I work on Enhanced Visual AI (EVAI). I am also a visiting scholar at HMI Lab, PKUCS supervised by Prof. Zhang Shanghang. I did my Ph.D focused on computer graphics and 3D vision at Tsinghua University, where I was advised by Prof. Zhang Li.

I'm especially interested in 1) Neural Field Simulators (robot navigation/robot manipulation/autonomous driving/digital human/thermal/underwater/etc.), 2) Large Vision-Language Models (training-free/efficient algorithms for the post-training of SAM/Diffusion Model/LLaVA/Qwen-VL/VLA/VLN/etc.), 3) EVAI for Chips (vision ISP/pre and post processing for Codec/rendering acceleration for GPU/etc.), and 4) EVAI for Sciences (neural field for medical data compression/etc.).

I have published over 50 papers on top-tier journals and conference proceedings. I also have about 30 PCT/US/EP patents approved for filing. Some of my works have been used in Intel GPU/CPU, Chris Lee's MV, and the opening ceremony of the Winter Olympic Games 2022.

Education

2009-2013 **Bachelor of Electronic Information Engineering**, *Tianjin University*, China, *Rank: 1/107*

2013-2019 **Ph.D Candidate of Information and Communication Engineering**, *Tsinghua University*, China,
Research Topics: 3D Vision and Computer Graphics

Work Experience

2013/06-2013/09 **Summer Intern**, Institute of Automation, Chinese Academy of Sciences, Beijing
Research topic: 3D reconstruction based on high-resolution light field images

2014/07-2014/12 **Summer Intern**, NEC Research, China, Beijing
Research topic: Image classification and object detection based on Deep Convolutional Neural Network

2015/01-2019/10 **Intern**, Intel Lab, China, Beijing
Research topic: 3D face reconstruction and tracking, image processing based on Deep Convolutional Neural Network

2019/10-2023/06 **Senior Researcher**, Intel Lab, China, Beijing
Research topic: Enhanced Visual AI

2023/06-2025/06 **Staff Researcher**, Intel Lab, China, Beijing
Research topic: Enhanced Visual AI

Skills

Basic java, webgl

Intermediate	PYTHON, LUA
Advanced	C,C++,CUDA,OPENGL,TORCH, PYTORCH

Languages

Chinese	Mothertongue	
English	Intermediate	*Conversationally fluent*

Publication

Neural Field Simulators

[9] 3DRealCar: An In-the-wild RGB-D Car Dataset with 360-degree Views, Xiaobiao Du, Haiyang Sun, Shuyun Wang, Zhuojie Wu, Hongwei Sheng, Jiaying Ying, Ming Lu, Tianqing Zhu, Kun Zhan, Xin Yu, International Conference on Computer Vision (ICCV), 2025

[8] EMD: Explicit Motion Modeling for High-Quality Street Gaussian Splatting, Xiaobao Wei, Qingpo Wuwu, Zhongyu Zhao, Zhuangzhe Wu, Nan Huang, Ming Lu, Ningning Ma, Shanghang Zhang, International Conference on Computer Vision (ICCV), 2025

[7] GazeGaussian: High-Fidelity Gaze Redirection with 3D Gaussian Splatting, Xiaobao Wei, Peng Chen, Guangyu Li, Ming Lu, Hui Chen, Feng Tian, International Conference on Computer Vision (ICCV), 2025

[6] K-Buffers: A Plug-in Method for Enhancing Neural Fields with Multiple Buffers, Haofan Ren, Zunjie Zhu, Xiang Chen, Ming Lu, Rongfeng Lu, Chenggang Yan, International Joint Conference on Artificial Intelligence (IJCAI), 2025

[5] PLGS: Robust Panoptic Lifting with 3D Gaussian Splatting, Yu Wang, Xiaobao Wei, Ming Lu, Guoliang Kang, Transactions on Image Processing (TIP), 2025

[4] SliceOcc: Indoor 3D Semantic Occupancy Prediction with Vertical Slice Representation, Jianing Li, Ming Lu, Hao Wang, Chenyang Gu, Wenzhao Zheng, Li Du, Shanghang Zhang, International Conference on Robotics and Automation (ICRA), 2025

[3] ThermalGaussian: Thermal 3D Gaussian Splatting, Rongfeng Lu, Hangyu Chen, Zunjie Zhu, Yuhang Qin, Ming Lu, Le Zhang, Chenggang Yan, Anke Xue, International Conference on Learning Representations (ICLR), 2025

[2] Superpixel-based Efficient Sampling for Learning Neural Fields from Large Input, Zhongwei Xuan, Zunjie Zhu, Shuai Wang, Haibing Yin, Hongkui Wang, Ming Lu, International Conference on Multimedia (MM), 2024

[1] NTO3D: Neural Target Object 3D Reconstruction with Segment Anything, Xiaobao Wei, Renrui Zhang, Jiarui Wu, Jiaming Liu, Ming Lu, Yandong Guo, Shanghang Zhang, Conference on Computer Vision and Pattern Recognition (CVPR), 2024

Large Vision-Language Models

[8] UniCTokens: Boosting Personalized Understanding and Generation via Unified Concept Tokens, Ruichuan An, Sihan Yang, Renrui Zhang, Zijun Shen, Ming Lu, Gaole Dai, Hao Liang, Ziyu Guo, Shilin Yan, Yulin Luo, Bocheng Zou, Chaoqun Yang, Wentao Zhang, arXiv, 2025

[7] Concept-as-Tree: Synthetic Data is All You Need for VLM Personalization, Ruichuan An, Kai Zeng, Ming Lu, Sihan Yang, Renrui Zhang, Huitong Ji, Qizhe Zhang, Yulin Luo, Hao Liang, Wentao Zhang, arXiv, 2025

[6] MC-LLaVA: Multi-Concept Personalized Vision-Language Model, Ruichuan An, Sihan Yang, Ming Lu, Renrui Zhang, Kai Zeng, Yulin Luo, Jiajun Cao, Hao Liang, Ying Chen, Qi She, Shanghang Zhang, Wentao Zhang, arXiv, 2025

[5] AutoV: Learning to Retrieve Visual Prompt for Large Vision-Language Models, Yuan Zhang, Chun-Kai Fan, Tao Huang, Ming Lu, Sicheng Yu, Junwen Pan, Kuan Cheng, Qi She, Shanghang Zhang, arXiv, 2025

[4] FastInit: Fast Noise Initialization for Temporally Consistent Video Generation, Chengyu Bai, Yuming Li, Zhongyu Zhao, Jintao Chen, Peidong Jia, Qi She, Ming Lu, Shanghang Zhang, arXiv, 2025

[3] Beyond Attention or Similarity: Maximizing Conditional Diversity for Token Pruning in MLLMs, Qizhe Zhang, Mengzhen Liu, Lichen Li, Ming Lu, Yuan Zhang, Junwen Pan, Qi She, Shanghang Zhang, arXiv, 2025

[2] Beyond Text-Visual Attention: Exploiting Visual Cues for Effective Token Pruning in VLMs, Qizhe Zhang, Aosong Cheng, Ming Lu, Zhiyong Zhuo, Minqi Wang, Jiajun Cao, Shaobo Guo, Qi She, Shanghang Zhang, International Conference on Computer Vision (ICCV), 2025

[1] MoVE-KD: Knowledge Distillation for VLMs with Mixture of Visual Encoders, Jiajun Cao, Yuan Zhang, Tao Huang, Ming Lu, Qizhe Zhang, Ruichuan An, Ningning Ma, Shanghang Zhang, Conference on Computer Vision and Pattern Recognition (CVPR), 2025

EVAI for Chips

[7] CABM: Content-Aware Bit Mapping for Single Image Super-Resolution Network with Large Input, Senmao Tian, Ming Lu, Jiaming Liu, Yandong Guo, Yurong Chen, Shunli Zhang, Conference on Computer Vision and Pattern Recognition (CVPR), 2023

[6] Adaptive Patch Exiting for Scalable Single Image Super-Resolution, Shizun Wang, Jiaming Liu, Kaixin Chen, Xiaoqi Li, Ming Lu, Yandong Guo European Conference on Computer Vision (ECCV Oral), 2022

[5] Efficient Meta-Tuning for Content-Aware Neural Video Delivery, Xiaoqi Li, Jiaming Liu, Shizun Wang, Cheng Lyu, Ming Lu, Yurong Chen, Anbang Yao, Yandong Guo, Shanghang Zhang, European Conference on Computer Vision (ECCV), 2022

[4] SamplingAug: On the Importance of Patch Sampling Augmentation for Single Image Super-Resolution, Shizun Wang, Ming Lu, Kaixin Chen, Jiaming Liu, Xiaoqi Li, Ming Wu, British Machine Vision Conference (BMVC), 2021

[3] Deep Likelihood Network for Image Restoration With Multiple Degradation Levels, Yiwen Guo, Ming Lu, Wangmeng Zuo, Changshui Zhang, Yurong Chen, Transactions on Image Processing (TIP), 2021

[2] Overfitting the Data: Compact Neural Video Delivery via Content-aware Feature Modulation, Jiaming Liu, Ming Lu, Kaixin Chen, Xiaoqi Li, Shizun Wang, Zhaoqing Wang, Enhua Wu, Yurong Chen, Chuang Zhang, Ming Wu, International Conference on Computer Vision (ICCV), 2021

[1] A Closed-Form Solution to Universal Style Transfer, Ming Lu, Hao Zhao, Anbang Yao, Yurong Chen, Feng Xu, Zhang Li, International Conference on Computer Vision (ICCV), 2019

EVAI for Sciences

[3] Implicit Neural Image Field for Biological Microscopy Image Compression, Gaole Dai, Cheng-Ching Tseng, Qingpo Wuwu, Rongyu Zhang, Shaokang Wang, Ming Lu,..., Jianxu Chen, Shanghang Zhang, Nature Computational Science (NCS), 2025

[2] A Generalist Foundation Model and Database for Open-World Medical Image Segmentation, Siqi Zhang, Qizhe Zhang, Shanghang Zhang, Xiaohong Liu, Jingkun Yue, Ming Lu, ..., Guangyu Wang, Nature Biomedical Engineering (NBE), 2025

[1] I-MedSAM: Implicit Medical Image Segmentation with Segment Anything, Xiaobao Wei, Jiajun Cao, Yizhu Jin, Ming Lu, Guangyu Wang, Shanghang Zhang, European Conference on Computer Vision (ECCV), 2024