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My research focuses on the intersection of AI and Graphics (AIG), where I possess a deep understanding of both visual AI and computer graphics. I did my Ph.D focused on 3D vision and computer graphics at Tsinghua University, where I was advised by Prof. Zhang Li.

I'm especially interested in 1) Neural Fields (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) AI for Chips (vision ISP/pre and post processing for Codec/rendering acceleration for GPU/etc.), and 4) AI 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 Fields

[1] Real-time 3D Eyelids Tracking from Semantic Edges, Quan Wen, Feng Xu, Ming Lu, Jun-Hai Yong, ACM Transactions on Graphics (TOG), 2017

[2] Emotion-preserving Blendshape Update with Real-time Face Tracking, Zhibo Wang, Jingwang Ling, Chengzeng Feng, Ming Lu, Feng Xu, IEEE Transactions on Visualization and Computer Graphics (TVCG), 2020

[3] Semantically Disentangled Variational Autoencoder for Modeling 3D Facial Details, Jingwang Ling, Zhibo Wang, Ming Lu, Quan Wang, Chen Qian, Feng Xu, IEEE Transactions on Visualization and Computer Graphics (TVCG), 2022

[4] Structure-aware Editable Morphable Model for 3D Facial Detail Animation and Manipulation, Jingwang Ling, Zhibo Wang, Ming Lu, Quan Wang, Chen Qian, Feng Xu, European Conference on Computer Vision (ECCV), 2022

[5] 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

[6] 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

[7] Graphavatar: Compact Head Avatars with GNN-Generated 3D Gaussians, Xiaobao Wei, Peng Chen, Ming Lu, Hui Chen, Feng Tian, Conference on Artificial Intelligence (AAAI), 2025

[8] 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

[9] 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

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

[11] 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

[12] 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

[13] 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

[14] 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

Large Vision-Language Models

[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

[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

AI for Chips

[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

[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

[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

[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

[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

[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

[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

AI for Sciences

[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

[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

[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