Lihan Li

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Educational Background

Peking University, Yuanpei College *Beijing, China*
-2026 (Expected)
Cumulative GPA: 3.63/4.00
Relevant Coursework: Artificial Intelligence Programming, Multimodal Machine Learning, Large Language Models and Natural Language Generation, Introduction to Embodied AI, Stochastic Processes, Numerical Analysis, Probability Theory

University of California, Berkeley *Berkeley, California,*
USA July 2023 –August 2023
Summer Session Exchange Program
GPA: 4.00/4.00

Research Interests

3D Computer Vision and Geometric Deep Learning: Point cloud processing, 3D scene understanding, 3D/4D generation
Computational Photography and Neural Rendering: Structured light, Differentiable rendering, View synthesis
High-Performance Computing and Systems Optimization: CUDA kernel optimization, Parallel algorithms

Publications

L. Li, H. Zhong, R, Bu, et al. PointCNN++: Performant Convolution on Native Points. *Under Review at CVPR 2026.*

J. Li, Q. Dai, **L. Li**, et al. Robust Single-shot Structured Light 3D Imaging via Neural Feature Decoding. *SIGGRAPH Asia 2025.*

Honor and Award

Global Exploration Scholarship, Yuanpei College, Peking Univ.
4 recipients out of 1300 students.

Research Projects

Ant Group Beijing, China
Research Intern | Advisor: Dr. Yangyan Li *2025/10 – Present*

Performant Convolution on Native Points

- Architected **PointCNN++**, a production-grade framework bridging point-based precision with voxel-based efficiency.
- Engineered high-performance **CUDA/Triton kernels** with memory coalescing, shared memory optimization, and tensor core utilization.
- Benchmarked extensively on large-scale datasets demonstrating superior performance over existing methods.

Peking University Visual Computing and Learning Laboratory (VCL) Beijing, China
Research Assistant | Advisor: Prof. Wenzheng Chen *2024/05 – Present*

Robust Single-shot Structured Light 3D Imaging via Neural Feature Decoding

- Contributed to a learning-based structured light decoding framework utilizing neural feature embeddings for robust pixel correspondence, improving reconstruction accuracy in complex lighting and material conditions.
- Built a comprehensive **physics-based simulation pipeline** with over one million synthetic samples using Blender' s rendering engine to train neural networks for structured light decoding.
- Designed a **monocular depth refinement module** leveraging geometric priors from pretrained depth networks for enhanced depth consistency.

DLGI: Depth-aware Layered Gaussian Images for Novel View Estimation

- Developed a novel probabilistic reconstruction framework that transforms single-image 3D reconstruction into principled statistical inference using depth-layered Gaussian Splatting to address fundamental geometric ambiguity challenges.
- Designed a depth-aware layering strategy that decomposes complex 3D scenes into multiple depth planes, each represented by optimized 2D Gaussian distributions, enabling robust novel view synthesis from limited input.

Professional Experience

Ant Group Hangzhou, China
Research Intern - Geometric Deep Learning *2025/9–Present*

- Developed scalable computational frameworks for geometric processing, gaining expertise in optimizing memory access patterns and designing efficient CUDA kernels for point cloud operations.
- Created **PointCNN++**, a scalable architecture formulating point-centric convolution as Matrix-Vector Multiplication and Reduction problem with highly-optimized GPU kernels.
- Implemented comprehensive **optimization strategies** including memory coalescing patterns, hierarchical shared memory management, and tensor core utilization for production-grade deployment.

BOKE Technology Co., Ltd. Shanghai, China
Quantitative Research Intern *2024/06–2024/09*

- Developed domain-adaptive regularization framework for real-time trading system inference with distributional distance metrics.
- Implemented **signal processing pipeline** using wavelet transforms and FFT analysis for multi-scale temporal feature extraction.
- Designed high-performance **backtesting infrastructure** with parallel processing.
- Built **feature attribution system** using SHAP values for quantitative interpretability and risk management.

Leadership and Organizational Experience

Director of Content Strategy & Communications, Hedge Fund Association Peking University
2023/01–2024/09

- Co-founded startup venture developing strategic initiatives for students pursuing careers in technology.
- Led development of algorithmic problem repositories and competitive programming curricula for technical interview preparation.

Minister of External Affairs, Yuanpei College Student Government Peking University
2022/05–2023/05

- Directing large-scale programs including annual New Year Gala and Freshman Dance Party serving 800+ participants.
- Managed corporate sponsorship negotiations and stakeholder engagement, securing substantial funding for academic and extracurricular programs while maintaining institutional integrity and alignment with university values.

Captain, Yuanpei College Debate Team Peking University
2022/10–Present

- Led debate team to multiple inter-collegiate championships and mentoring junior debaters.
- Demonstrated exceptional logical reasoning and communication in high-stakes competitive environments.

Instructor, Peking University Figure Skating Association Beijing, China
2022/10–Present

- Designed comprehensive female figure skating curricula with progressive skill development.

Technical Skills and Proficiencies

Languages: Mandarin (Native), English (Fluent)
Programming Languages: Python, C++, R, MATLAB, SQL, CUDA
Machine Learning Frameworks: PyTorch, TensorFlow, Triton
Specialized Tools: Blender (3D Modeling), Git, Docker, Linux/Unix Systems
Athletic and Artistic Pursuits: Badminton, Classical Piano (Grade 10 Certification), Figure Skating (Instructor Level)