

# Bangyan Liao

liaobangyan@westlake.edu.cn | Personal Website | Google Scholar

## Education

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Hunan University, BS in Automation.	Sept 2019 – June 2023
Westlake University & Zhejiang University (Joint Program), PhD in Computer Science and Technology. Advisor: Prof. Peidong Liu.	Sept 2023 – June 2028 (expected)

## Research Interests

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Multi-view Geometry Problems in 3D Computer Vision	2023 - 2024
<b>Optimization :</b>	2023 -
Globally Optimal Outlier-Robust Optimization	
Learning to Globally Optimal Optimize	
<b>Learning to Transport, Inference and Control Probability Path Measures :</b>	2024 -
[Transport] Optimal Transport / Schrödinger Bridge	
[Control] Stochastic Optimal Control / Mean-Field Control	
[Inference] Nonlinear Smoothing / Filtering	

## Publications

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<b>scDFM: Distributional Flow Matching Model for Robust Single-Cell Perturbation Prediction</b>	2026
C Yu*, C Wang*, <b>B Liao</b> , T Wu	
International Conference on Learning Representations (ICLR)	
<b>Neural Predictor-Corrector: Solving Homotopy Problems with Reinforcement Learning</b>	2026
J Mai*, <b>B Liao</b> *, Z Zhao, Y Zeng, H Li, J Civera, T Wu, Y Zhou, P Liu,	
International Conference on Learning Representations (ICLR)	
<b>E-MoFlow: Learning Egomotion and Optical Flow from Event Data via Implicit Regularization</b>	2025
W Li*, <b>B Liao</b> *, Z Yi, Q Xu, P Wu, P Liu,	
Advances in Neural Information Processing Systems (NeurIPS)	
<b>DaCapo: Score Distillation as Stacked Bridge for Fast and High-quality 3D Editing</b>	2025
Y Huang, <b>B Liao</b> , Y Hu, H Lin, L Wu, S Li, C Tan, Z Liu, Y Liu, Z Zang, C Yu, Z Lei	
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)	
<b>Convex Relaxation for Robust Vanishing Point Estimation in Manhattan World</b>	2025
<b>B Liao</b> *, Z Zhao*, H Li, Y Zhou, Y Zeng, H Li, P Liu	
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)	
<b>[Full Score] [Oral][Award Candidate]</b>	
<b>EvTTC: An Event Camera Dataset for Time-to-Collision Estimation</b>	2025
K Sun*, J Li*, K Dai, <b>B Liao</b> , W Xiong, Y Zhou	
IEEE Robotics and Automation Letters (IEEE RAL)	
<b>Ego-motion Estimation for Vehicles with a Rolling Shutter Camera</b>	2024
Y Zhang, <b>B Liao</b> , D Qu, J Wu, X Lu, W Li, Y Xue, Y Lao	
IEEE Transactions on Intelligent Vehicles (IEEE TIV)	
<b>RSL-BA: Rolling Shutter Line Bundle Adjustment</b>	2024
Y Zhang*, <b>B Liao</b> *, Y Xue, C Lu, P Liu, Y Lao	
European Conference on Computer Vision (ECCV)	
<b>GlobalPointer: Large Scale Plane Adjustment with Bi-Convex Relaxation</b>	2024
<b>B Liao</b> *, Z Zhao*, L Chen, H Li, D Cremers, P Liu	

European Conference on Computer Vision (ECCV)	
<b>Motion and Structure from Event-based Normal Flow</b>	2024
Z Ren*, <b>B Liao*</b> , D Kong, J Li, P Liu, L Kneip, G Gallego, Y Zhou	
European Conference on Computer Vision (ECCV)	
<b>Event-Aided Time-to-Collision Estimation for Autonomous Driving</b>	2024
J Li*, <b>B Liao*</b> , X Lu, P Liu, S Shen, Y Zhou	
European Conference on Computer Vision (ECCV)	
<b>USB-NeRF: Unrolling Shutter Bundle Adjusted Neural Radiance Fields</b>	2024
M Li*, P Wang*, L Zhao, <b>B Liao*</b> , P Liu	
International Conference on Learning Representations (ICLR)	
<b>Fast Rolling Shutter Correction in the Wild</b>	2023
D Qu*, <b>B Liao*</b> , H Zhang, O Ait-Aider, Y Lao	
IEEE Transactions on Pattern Analysis and Machine Intelligence (IEEE TPAMI)	
<b>Revisiting Rolling Shutter Bundle Adjustment: Toward Accurate and Fast Solution</b>	2023
<b>B Liao*</b> , D Qu*, Y Xue, H Zhang, Y Lao	
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)	

## Experience

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<b>Visiting Student</b> , AI4S Lab, Westlake University	Feb 2025 –
<ul style="list-style-type: none"> <li>• Advisor: Prof. Tailin Wu.</li> <li>• Researched at fundamental machine learning algorithm.</li> </ul>	
<b>Visiting Student</b> , Prof. Lao's Lab, Hunan University	Apr 2021 – June 2023
<ul style="list-style-type: none"> <li>• Advisor: Prof. Yizhen Lao.</li> <li>• Researched at novel fundamental geometric and optimization solvers on Rolling Shutter camera.</li> <li>• Resulted in IEEE TPAMI and CVPR 2023 paper.</li> </ul>	
<b>Visiting Student</b> , NAIL, Hunan University	Nov 2021 – June 2023
<ul style="list-style-type: none"> <li>• Advisor: Prof. Yi Zhou.</li> <li>• Researched at novel fundamental geometric and optimization solvers on Event camera.</li> <li>• Built and developed a vehicle forward warning software and hardware system with Event camera.</li> <li>• Resulted in two ECCV 2024 papers.</li> </ul>	

## Awards

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CVPR 2025 Award Candidate (15/13008 submissions)	Aug 2025
National Scholarship	Oct 2025
National Natural Science Foundation of China (NSFC) PhD Program	Dec 2025

## Student Mentoring

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Yingping Zeng	Aug 2024 -
<ul style="list-style-type: none"> <li>• co-supervised master student with Prof. Yi Zhou from Hunan University</li> </ul>	
Hao Li	Oct 2024 - Apr 2025
<ul style="list-style-type: none"> <li>• visiting undergraduate student from Shandong University</li> </ul>	
Zhisheng Song	Sep 2024 -
<ul style="list-style-type: none"> <li>• visiting undergraduate student from Shandong University</li> </ul>	

## Reviewing

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The IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)	2023 -
The International Conference on Computer Vision Conference (ICCV)	2024 -
The AAAI Conference on Artificial Intelligence (AAAI)	2024 -
The ACM Multimedia (ACM MM)	2025 -
The International Conference on 3D Vision (3DV)	2024 -
The IEEE International Conference on Robotics and Automation (ICRA)	2024 -
The IEEE Robotics and Automation Letters (RAL)	2024 -
The Conference on Neural Information Processing Systems (NeurIPS)	2025 -
International Conference on Learning Representations (ICLR)	2025 -

## Skills

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**Languages:** IELTS: 6.5 CET-4: 623 CET-6: 490

**Programming:** C/C++, Python, Matlab