

QINFENG ZHU

Ph.D. Researcher in Computer Vision

University of Liverpool • Xi'an Jiaotong-Liverpool University

PORTFOLIO [zhuqinfeng1999.github.io](#) • [zhuqinfeng1999@gmail.com](#)

[Google Scholar](#) • [GitHub](#) • [ORCID](#)

SEEKING 2026 RESEARCH INTERNSHIPS | 2027 FULL-TIME ROLES

PROFILE

Ph.D. researcher developing geometry-aware visual perception for panoramic imagery, 3D point clouds, and remote-sensing data. My work emphasizes robust dense prediction, multimodal sensing, and research datasets for real-world scene understanding. Advised by Dr. Lei Fan; expected to graduate in 2027.

RESEARCH FOCUS & CURRENT DIRECTIONS

- **Panoramic vision for embodied perception:** sphere-aware representation learning, rotation-robust dense prediction, and panoramic video analysis for robotic environment understanding.
- **3D computer vision:** point-cloud learning, data augmentation, multimodal point-cloud analysis, and fine-grained urban scene understanding.
- **Remote sensing:** semantic segmentation and multimodal fusion for aerial, satellite, and multispectral imagery.
- **Mentoring and collaboration:** landslide susceptibility prediction (multiple manuscripts under review) and quantum deep learning (ongoing algorithm research for 128-qubit simulation).

EDUCATION

Ph.D. in Computer Science

University of Liverpool & Xi'an Jiaotong-Liverpool University • Advisor: Dr. Lei Fan

Expected 2027

Master of Research (MRes) in Computer Science

University of Liverpool, United Kingdom

2023

SELECTED PUBLICATIONS & RESEARCH IN PROGRESS

- 1 **Panoramic Pedestrian Tracking: Synthetic and Real-World Benchmarks with a New Baseline**
[ONGOING](#) Dataset construction and baseline development.
- 2 **Panoramic Scene Understanding: A Survey from Distortion-Aware Engineering to Sphere-Native Modeling**
Qinfeng Zhu, Lei Fan. [UNDER REVIEW AT IJCV](#) arXiv:2606.27745, 2026.
- 3 **SO3UFormer: Learning Intrinsic Spherical Features for Rotation-Robust Panoramic Dense Prediction**
Qinfeng Zhu, Yunxi Jiang, Lei Fan. [UNDER REVIEW AT IJCV](#) arXiv:2602.22867, 2026.
- 4 **Towards Accurate Urban Scene Understanding Using Point Clouds: The SemanticUrban Dataset**
Yuan Fang[†], Qinfeng Zhu[†], Yuanzhi Cai, Lei Fan. *Expert Systems with Applications*, 132949, 2026. [†]co-first authors.
- 5 **Advancements in Point Cloud Data Augmentation for Deep Learning: A Survey**
Qinfeng Zhu, Lei Fan, Ningxin Weng. *Pattern Recognition*, 153:110532, 2024.
- 6 **ClassWise-CRF: Category-Specific Fusion for Enhanced Semantic Segmentation of Remote Sensing Imagery**
Qinfeng Zhu, Yunxi Jiang, Lei Fan. *Neural Networks*, 197:108485, 2026.
- 7 **Rethinking Scanning Strategies with Vision Mamba in Semantic Segmentation of Remote Sensing Imagery**
Qinfeng Zhu, Yuan Fang, Yuanzhi Cai, Cheng Chen, Lei Fan. *IEEE JSTARS*, 17:18223–18234, 2024.
- 8 **IndoorMS: A Multispectral Dataset for Semantic Segmentation in Indoor Scene Understanding**
Qinfeng Zhu, Jingjing Xiao, Lei Fan. *IEEE Sensors Journal*, 25(11):19837–19847, 2025.

ADDITIONAL PUBLICATIONS

- 1 **A Generalised Pre-Training Strategy for Deep Learning Networks in Semantic Segmentation of Remotely Sensed Images.** Yuan Fang, Yuanzhi Cai, Jagannath Aryal, **Qinfeng Zhu**, Hong Huang, Cheng Zhang, Lei Fan. *Computer Graphics International (CGI), LNCS*, 2026.
- 2 **SwinMamba: A Hybrid Local-Global Mamba Framework for Enhancing Semantic Segmentation of Remotely Sensed Images.** **Qinfeng Zhu**, Han Li, Liang He, Lei Fan. *Digital Signal Processing*, 175:106029, 2026.
- 3 **From Landslide Conditioning Factors to Satellite Embeddings: Evaluating the Utilisation of Google AlphaEarth for Landslide Susceptibility Mapping Using Deep Learning.** Yusen Cheng, **Qinfeng Zhu**, Lei Fan. Under review; arXiv:2601.07268, 2026.
- 4 **Enhancing Environmental Monitoring Through Multispectral Imaging: The WasteMS Dataset for Semantic Segmentation of Lakeside Waste.** **Qinfeng Zhu**, Ningxin Weng, Lei Fan, Yuanzhi Cai. *MMM*, pp. 362–372, 2025.
- 5 **MSCrackMamba: Leveraging Vision Mamba for Crack Detection in Fused Multispectral Imagery.** **Qinfeng Zhu**, Yuan Fang, Lei Fan. *IEEE BDAI*, 2025.
- 6 **Samba: Semantic Segmentation of Remotely Sensed Images with State Space Model.** **Qinfeng Zhu**, Yuanzhi Cai, Yuan Fang, Yihan Yang, Cheng Chen, Lei Fan, Anh Nguyen. *Heliyon*, 10(19):e38495, 2024.
- 7 **Evaluating the Impact of Point Cloud Colorization on Semantic Segmentation Accuracy.** **Qinfeng Zhu**, Jiaze Cao, Yuanzhi Cai, Lei Fan. *IEEE ICVISP*, 2024.
- 8 **Seg-LSTM: Performance of xLSTM for Semantic Segmentation of Remotely Sensed Images.** **Qinfeng Zhu**, Yuanzhi Cai, Lei Fan. *SSIP*, 2024.
- 9 **Algorithm-Driven Extraction of Point Cloud Data Representing Bottom Flanges of Beams in a Complex Steel Frame Structure for Deformation Measurement.** Yang Zhao, Dufei Wang, **Qinfeng Zhu**, Lei Fan, Yuanfeng Bao. *Buildings*, 14(9):2847, 2024.

ACADEMIC SERVICE

Journal reviewer: TNNLS, TCSVT, T-ITS, TNSE, ISPRS JPRS, PR, NN, ESWA, EAAI, and Neurocomputing.

Conference reviewer: ICLR, AAAI, IJCAI, NeurIPS, and WACV.