Lingjie Su

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EDUCATION

Huazhong University of Science and Technology, Wuhan, China — *Sep. 2022 – Jun. 2025*
Candidate for Master of Engineering, School of Mechanical Science and Engineering — *GPA*: 91.04/100

Huazhong University of Science and Technology, Wuhan, China — *Sep. 2018 – Jun. 2022*
Bachelor of Engineering, School of Mechanical Science and Engineering — *GPA*: 90.20/100

RESEARCH EXPERIENCE

Probability-based point cloud registration — *Jan. 2024 – Present*

- Designed pairwise point cloud registration method by formulating the problem as a GMM fitting task, incorporating locally consistent constraint to enhance robustness, and deriving a closed-form solution using EM algorithm
- Extend pairwise registration to joint registration to solve the problem of simultaneously registering multiple point clouds

Mesh reconstruction and denoising — *Dec. 2022 – Present*

- Reconstructed the implicit B-spline surface from point cloud, fitted by 3L algorithm with global tension constraint
- Generated mesh data from an implicit surface function using the Marching Cubes method
- Proposed an anisotropic bilateral filtering method for mesh denoising to enhance mesh quality

Software development for architectural point cloud — *Aug. 2022 – Dec. 2023*

- Preprocessing of architecture point cloud: including down-sampling, registration, and filtering.
- Component extraction, including I-beam, angle steel, and tubes, and parameter calculation.

Multi-view point cloud registration — *Oct. 2021 – Apr. 2022*

- Reconstructed marker points from images using elliptic fitting, polar constraints, and triangulation. Calculated coordinate transformations between different views using spatial invariant characteristics
- Refined coordinates under different views through graph optimization using g2o framework

PUBLICATIONS

L. Su, W. Xu, S. Zhao, Y. Cheng, and W. Li, "A robust probability-based joint registration method of multiple point clouds considering local consistency," in *Proc. IEEE Int. Conf. Robot. Autom.* (ICRA), 2025, Under Review, preprint

L. Su, W. Xu, and W. Li, "Robust point cloud registration in robotic inspection with locally consistent gaussian mixture model," *IEEE Trans. Instrum. Meas.*, 2024, Major Revisions. preprint

L. Su et al., "An adaptive anisotropic bilateral filtering method for mesh data in scale space," *Meas. Sci. Technol.*, vol 35, no. 6, 2024, doi: 10.1088/1361-6501/ad317e

RESEARCH INTERESTS

Point cloud registration, Surface reconstruction, Mesh denoising

SKILLS

Language: English (IELTS: 7.0), Chinese (Native)
Computer Skills: C++, Matlab, PCL, OpenCV, Ceres, Eigen, g2o, Python