

Huijun Han

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EDUCATIONAL BACKGROUND

Texas A&M University, Dept. of Computer Science & Engineering, *M.S. - Computer Science* 2023.9 - now

- Competitive Scholarships, 2023–2024, Awarded for academic distinction and leadership, top 10% selection rate.
- Member of Intelligent Geometric and Visual Computing ([IGVC](#)) Lab

Southeast University, School of Instrument Science and Engineering, *B.E. - Measuring Control Technology and Instrument* 2017.9 - 2021.6

- Average score: 89.97, GPA: 3.87/4, Ranking: 1/92
- Outstanding Student of Southeast University (Top 3% in the university)
- Outstanding Graduate of Southeast University (Top 5% in the university)
- Principal's Scholarship

WORKING EXPERIENCE

Research Assistant in Faculty of Dentistry, Hong Kong University 2021.12 - 2023.6

- Project: Developed an AI-based orthodontic surgery planning system to improve communication between patients and dentists.
- Data Acquisition: Collected and pre-processed high-quality 3D facial data from patient volunteers for model training.
- Model Development: Designed and trained parametric models and neural networks to predict surgical outcomes with high accuracy.
- User Study & Collaboration: Collected feature requirements, conducted user studies, and collaborated with dental experts to validate and refine the AI-based surgery planning system.

RESEARCH EXPERIENCES

3D Reconstruction and Processing, IGVC Lab, Texas A&M University 2023.10 - now

- RGB-D SLAM: 2D images to 3D Point Cloud / NeRF / Gaussian Splatting.
- Semantic Segmentation: 2D image and 3D point cloud instance segmentation.
- CAD Model Registration: Model retrieval and rigid registration.
- Automatic Pipeline Design: Implemented the pipeline and introduced new geometric losses.
- **Achievement**: One paper was published in 19th ACM SIGGRAPH VRCAI conference.

Feature Matching and Object Reassembly, IGVC Lab, Texas A&M University 2023.9 - 2024.8

- 2D Image Feature Matching: A fast quadratic assignment problem solver for graph matching.
- 3D Data Collection: Thorough study on various RGB-D scanners.
- 3D Object Reassembly Survey: Thorough survey for object reassembly by symmetric attribute.
- **Achievements**: One paper was published in the 19th ISVC (Oral paper, Springer Best Paper Award). One paper was submitted to 2025 Eurographics.

AI-based Orthodontics Surgery Planning, Faculty of Dentistry, Hong Kong University 2021.12 - 2023.6

- AI-based System Design: A prediction system to visualize appearance differences for orthodontic surgery planning, reducing communication barriers between patients and doctors by leveraging paired preoperative and postoperative 3D meshes.
- Data Collection: Pre-processed 3D scans, established dense correspondence, and utilized parametric morphable models to train a data-driven network capable of capturing features from high-resolution point sets and parametric representations.
- Network Design and Training: Developed a robust network that achieved surgical-level accuracy in predicting human face changes for different surgery plans.
- **Achievement**: One paper was submitted to Computer Programs and Methods in Biomedicine (CMPB) (under minor revision).

Symbol Detection Improvement Project, LEADS Subject Group, Southeast University 2019.5 - 2019.10

- Algorithm Design: Applied the Expectation Propagation (EP) algorithm combined with Bayesian estimation theory to improve symbol detection in massive MIMO systems, addressing accuracy and computational complexity challenges in traditional methods. Introduced a Weighted Neumann Series Approximation (wNSA) to enhance the convergence rate and accuracy of the EP algorithm. Enhanced the EP algorithm by introducing a convergence factor and implementing an early stop mechanism.
- Hardware-friendly Algorithm Implementation: Improved detection performance and reduced computational complexity.
- **Achievement**: One paper was published in IEEE Transactions on Circuits and Systems II (IEEE TCAS-II).

Sound signal recovery, LEADS Subject Group, Southeast University 2019.1 - 2019.3

- Multi-rotor UAVs Development: A system for multi-rotor UAVs to analyze multi-channel sound signals, identifying faint human voices amidst motor and wind noise to locate the azimuth of trapped individuals during earthquake search and rescue operations.

- Enhanced the recovery algorithm by incorporating a Kalman filtering algorithm.
- **Achievement:** Achieved 9th place globally in the 2019 IEEE Signal Processing Competition as part of a team.

PUBLICATIONS

- Xiaosi Tan, **Huijun Han**, Muhao Li, Kai Sun, Yongming Huang, Xiaohu You, and Chuan Zhang, "[Approximate Expectation Propagation Massive MIMO Detector With Weighted Neumann-Series](#)," IEEE Transactions on Circuits and Systems II: Express Briefs, vol. 68, no. 2, pp. 662-666, Feb. 2021, doi: 10.1109/TCSII.2020.3017381.
- **Huijun Han**, Yongqing Liang, Yuanlong Zhou, Wenping Wang, Edgar J. Rojas-Muñoz, Xin Li, "[AURORA: Automated Unleash of 3D Room Outlines for VR Applications](#)," in The 19th ACM SIGGRAPH International Conference on Virtual-Reality Continuum and its Applications in Industry (SIGGRAPH VRCAI), 2024.
- Yongqing Liang, **Huijun Han**, and Xin Li. "[CLAP: Concave Linear APproximation for Quadratic Graph Matching](#)." 19th International Symposium on Visual Computing (ISVC 2024, an oral paper, **Springer Best Paper Award**).
- **Huijun Han**, Congyi Zhang, Lifeng Zhu, Pradeep Singh, Richard Tai-Chiu Hsung, Yiu Yan Leung, Taku Komura, Wenping Wang, and Min Gu, "Facial Surgery Preview Based on the Orthognathic Treatment Prediction," Computer Programs and Methods in Biomedicine (CMPB) (under minor revision).
- Jiaxin Lu[†], Yongqing Liang[†], **Huijun Han**[†], Jiacheng Hua[†], Junfeng Jiang, Xin Li, Qixing Huang, "[A Survey on Computational Solutions for Reconstructing Complete Objects by Reassembling Their Fractured Parts](#)", submitted to 2025 Eurographics ([†] denotes equal contribution)

SKILLS

- Programming: Python, C++, CUDA, Matlab
- Frameworks: PyTorch, OpenGL, OpenGL Mathematics (GLM)
- Languages: Mandarin, English, Cantonese