Minheng Chen

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EDUCATION

University of Texas at Arlington — Arlington, TX, USA
- Ph.D. in Computer Science — 0 8/2024-present

Southeast University — Nanjing, China
- B.E. in Computer Science and Technology — 09/2020-06/2024

AWARDS and HONORS

- Outstanding Undergraduate Thesis of Southeast University (top 3%) — 2024
- Outstanding Undergraduate Thesis of Jiangsu Province (35 students in SEU each year) — 2024

RESEARCH EXPERIENCE

Research Assistant, Lab of Imaging Science and Technology, School of CSE, Southeast University, 11/2021-06/2024
- **PI: Xudong Bao and Youyong Kong**
- Developed a CT/X-ray image registration framework for robotic navigation in minimally invasive spine surgery.
- Participated in the development of advanced algorithms for spinal localization, segmentation, and recognition in orthopedic surgical navigation.
- Developed a software system for clinical orthopedic surgery robot navigation, obtained software copyright, and contributed to several research papers. (1 ICASSP, 2 ISBI, 1 WACV, 1 Medical Physics, 1AIIM)

SELECTED PUBLICATION

10. *Minheng Chen, Youyong Kong.* "Intraoperative 2D/3D Registration via Spherical Similarity Learning and Differentiable Levenberg-Marquardt Optimization", Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2026, **Oral presentation**.

9. *Yan Zhuang*, Minheng Chen*, Chao Cao, Tong Chen, Jing Zhang, Xiaowei Yu, Yanjun Lyu, Lu Zhang, Tianming Liu, Dajiang Zhu.* "GyralNet Sub-network Partitioning via Differentiable Spectral Modularity Optimization", International Workshop on Machine Learning in Medical Imaging, 2025.

8. *Minheng Chen, Xiaowei Yu, Jing Zhang, Tong Chen, Chao Cao, Yan Zhuang, Yanjun Lyu, Lu Zhang, Tianming Liu, Dajiang Zhu.* "Core-Periphery Principle Guided State Space Model for Functional Connectome Classification", International Conference on Medical Image Computing and Computer-Assisted Intervention, 2025.

7. *Tong Chen, Minheng Chen, Jing Zhang, Yan Zhuang, Chao Cao, Xiaowei Yu, Yanjun Lyu, Lu Zhang, Li Su, Tianming Liu, Dajiang Zhu.* "A Unified Continuous Staging Framework for Alzheimer's Disease and Lewy Body Dementia via Hierarchical Anatomical Features", International Conference on Medical Image Computing and Computer-Assisted Intervention, 2025.

6. *Junxian Wu, Minheng Chen, Xinyi Ke, Tianwang Xun, Xiaoming Jiang, Hongyu Zhou, Lizhi Shao, Youyong Kong.* "Learning Heterogeneous Tissues with Mixture of Experts for Gigapixel Whole Slide Images", Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2025.

5. *Minheng Chen, Chao Cao, Tong Chen, Yan Zhuang, Jing Zhang, Yanjun Lyu, Xiaowei Yu, Lu Zhang, Tianming Liu, Dajiang Zhu.* "Using Structural Similarity and Kolmogorov-Arnold Networks for Anatomical Embedding of Cortical Folding Patterns", 2025 IEEE International Symposium on Biomedical Imaging (ISBI).

4. *Minheng Chen*, Zhirun Zhang*.* "Introducing Learning Rate Adaptation CMA-ES Into Rigid Intraoperative 2D/3D Registration for Spinal Surgery", 2025 IEEE International Symposium on Biomedical Imaging (ISBI).

3. *Tonglong Li, Minheng Chen, Mingying Li, Chuanyou Li, Youyong Kong.* "Automatic X-ray to CT Registration Using Embedding Reconstruction and Lite Cross-Attention", Medical Physics.

2. *Minheng Chen, Zhirun Zhang, Shuheng Gu, Zhangyang Ge, Youyong Kong.* "Fully Differentiable Correlation-driven 2D/3D Registration for X-Ray to CT Image Fusion", 2024 IEEE International Symposium on Biomedical Imaging (ISBI).

1. *Minheng Chen, Zhirun Zhang, Shuheng Gu, Youyong Kong.* "Embedded Feature Similarity Optimization with Specific Parameter Initialization for 2D/3D Medical Image Registration", 2024 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP2024).

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Minheng Chen & *Zhirun Zhang*, SimpleRegi V1.0, registration number: 2023SR0907053, 03/2023

INTERNSHIP EXPERIENCE

Tester, **Jiangsu Wiscom System Co., Ltd.** — 08/2023-09/2023
- Tested the network storm suppression rate and other performance indicators of the internal switches of the 910B smart box transformer protection device after understanding its basic functions.

SERVICES

- **Graduate teaching assistant:** CSE 3302 Programming Languages (24 Fall, 25 Spring), CSE 6389 ADV MM, GRAPHICS, IMAGE PROC (25 Fall), CSE 3380 Linear Algebra for CSE(25 Fall)
- **Conference reviewer:** ISBI 2025-26, AAAI 2026, MIDL 2026
- **Journal reviewer:** IEEE TMI, IEEE JBHI

SKILLS

Languages: Chinese (Native); English (Proficient)

Computer Skills: Proficient in C/C++, Python, Java, Matlab, LaTeX, and Office, familiar with PyTorch framework