# ZIQUAN WEI

## 2nd year PhD student & AI4Science

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## EXPERIENCE

### Pre-doc Fellow Trainee
**University of North Carolina at Chapel Hill**

📅 Sept 2022 – Aug 2023          ● Chapel Hill, US

- Develop a GNN-based framework that can do 3D nuclei instance segmentation on the whole mouse brain, which contains ∼40 million cells, in ∼15 hrs.
- Published 3 conference papers on MICCAI, ISBI, and NeurIPS.

## SELECTED PUBLICATIONS

### 👥 Top-tier Conference *(* indicates equal contribution)*

- **Z. Wei**, T. Dan, J. Ding, P. Laurienti, and G. Wu, "Representing functional connectivity with structural detour: A new perspective to decipher structure-function coupling mechanism," in proceedings of MICCAI, vol. LNCS 15002, Springer Nature Switzerland, Oct. 2024.

- **Z. Wei**, T. Dan, J. Ding, and G. Wu, "Neuropath: A neural pathway transformer for joining the dots of human connectomes," in NeurIPS, 2024.

- **Z. Wei** and G. Wu, "Non-local exchange: Introduce non-locality via graph re-wiring to graph neural networks," in NeurIPS Workshop, 2024.

- **Z. Wei**, T. Dan, J. Ding, M. Dere, and G. Wu, "A general stitching solution for whole-brain 3d nuclei instance segmentation from microscopy images," in proceedings of MICCAI, Springer Nature Switzerland Cham, 2023, pp. 46–55.

- **Z. Wei**, T. Dan, J. Ding, C. McCormick, F. A. Kyere, M. Kim, D. Borland, J. L. Stein, and G. Wu, "High throughput deep model of 3d nucleus instance segmentation by stereo stitching contextual gaps," in proceedings of ISBI, IEEE, 2023, pp. 1–5.

- S. Zhang*, Y. Ding*, **Z. Wei***, and C. Guan, "Continuous emotion recognition with audio-visual leader-follower attentive fusion," in proceedings of ICCV, 2021, pp. 3567–3574

### 📓 Journal

- Z. Yang, Y. Yang, K. Yang, and **Z. Wei**, "Non-rigid image registration with dynamic gaussian component density and space curvature preservation," IEEE Transactions on Image Processing, vol. 28, no. 5, pp. 2584–2598, 2018.

- S. Zhang, K. Yang, Y. Yang, Y. Luo, and **Z. Wei**, "Non-rigid point set registration using dual-feature finite mixture model and global-local structural preservation," Pattern Recognition, vol. 80, pp. 183–195, 2018.

- **Z. Wei**, Y. Han, M. Li, K. Yang, Y. Yang, Y. Luo, and S.-H. Ong, "A small uav based multi-temporal image registration for dynamic agricultural terrace monitoring," Remote Sensing, vol. 9, no. 9, p. 904, 2017.

## PROJECTS

🏆 **Deep Learning for Products**
Two projects of AI-driven medical imaging for object detection and instance segmentation were researched with Python and then deployed with C++ for practical products. Find them in GitHub repo 1[1] and 2[2]

💗 **Deep Learning w/Interpretability**
Pronounce ideas of Graph Transformer methods with evident analysis of significance $t$-test in real-world datasets, papers of which proposed new facts of graph theory for prevailing inter-subject variations towards to brain foundation models.

## EDUCATION

### Ph.D. in Computer Science
**University of North Carolina at Chapel Hill**

📅 Sept 2023 – on          ● Chapel Hill, US

### M.S. in Biomedical Engineering
**Huazhong University of Science and Technology**

📅 2019 – 2022          ● Wuhan, China

### B.S. in Computer Science
**Yunnan Normal University**

📅 2015 – 2019          ● Kunming, China

## REFEREES

**Prof. Guorong Wu (Advisor)**
@  Department of Computer Science, University of North Carolina at Chapel Hill
✉  grwu@med.unc.edu

**Prof. Jason L. Stein**
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[1] Chrisa142857/You-Only-Look-Cytopathology-Once
[2] Chrisa142857/Lightsheet_microscopy_image_3D_nuclei_instance_segmentation