

BANGWEI GUO

✉ bangwei.guo@rutgers.edu ·  [Google Scholar](#) ·  (+1) 732-558-9213 ·

EDUCATION

Rutgers, The State University of New Jersey, Piscataway, NJ, USA. Sep. 2023 – Present

Ph.D. student in Computer Science.

Advised by Distinguished Prof. Dimitris N. Metaxas.

University of Science and Technology of China (USTC), Anhui, China. Sep. 2020 – Jun. 2023

Master in Applied Statistics.

Co-advised by Dr. Steven Xu and Prof. Hong Zhang.

University of Science and Technology of China (USTC), Anhui, China. Sep. 2016 – Jun. 2020

B.S. in Mathematics and Applied Mathematics.

RESEARCH SKILLS AND INTERESTS

- **Programming Languages:** Python, Pytorch, R, Matlab, LaTeX, .
- **Research Interests:** Computer Vision, Medical Image, Foundation Models, Multi-modal Learning, Large Language Models.

EXPERIENCE

NEC Laboratories America, Princeton, NJ, USA.

Aug. 2025 – Present

Part-time Research Intern. Mentored by Dr. Xujiang Zhao.

- Leveraging a multi-agent large multimodal framework to extract entities and relations from complex structural diagrams.
- Reinforcement learning fine-tuning of LLM to solve mathematical optimization problems.

Rutgers, The State University of New Jersey.

Sep. 2023 – Present

Research Assistant at CBIM. Supervised by Distinguished Prof. Dimitris Metaxas.

- Unified segmentation framework for medical imaging (semantic, in-context, interactive).
- Semantic and Interactive segmentation framework for cardiac imaging.
- 3D mandible reconstruction from 2D medical images.
- Recovering 3D regional heart wall motion.

Teaching Assistant.

- Mathematical Foundations of Data Science, *Spring 2025*.
- Introduction to Discrete Structures, *Fall 2024*.
- Topics in Computers in Biomedicine, *Spring 2024*.
- Introduction to AI, *Fall 2023*.

University of Science and Technology of China.

Sep. 2020 – Jun. 2023

Research Assistant.

- Predicting key biomarkers associated with colorectal cancer progression.
- Inferring gene mutation patterns across multiple whole-slide images (WSIs) of various cancer types.
- Simulating computational statistical processes to validate theoretical properties.

Teaching Assistant.

- Statistical Calculation, *Fall 2021*.

PUBLICATIONS AND PREPRINTS

- **Guo, B.**, Gao, Y., Ye, M., Gu, D., Zhou, Y., Axel, L., & Metaxas, D. (2025). K-Prism: A Knowledge-Guided and Prompt Integrated Universal Medical Image Segmentation Model. arXiv preprint arXiv:2509.25594.

(Accepted by ICLR2026) [article](#)

- **Guo, B.**, Ye, M., Gao, Y., Xin, B., Axel, L., & Metaxas, D. (2025). VerSe: Integrating Multiple Queries as Prompts for Versatile Cardiac MRI Segmentation. In International Conference on Information Processing in Medical Imaging (pp. 373-387). [article](#)
- Ye, M., Xin, B., **Guo, B.**, Axel, L., & Metaxas, D. (2024). Learning Volumetric Neural Deformable Models to Recover 3D Regional Heart Wall Motion from Multi-Planar Tagged MRI. arXiv preprint arXiv:2411.15233 (Under review). [article](#)
- Axel, L., Kanski, M., Jhaveri, A., Ye, M., **Guo, B.**, He, X., & Metaxas, D. (2025). Analysis of Cardiac Dynamic Global Function. In International Conference on Functional Imaging and Modeling of the Heart (pp. 197-206). [article](#)
- Zhou, Y., Zhao, M., Wang, Z., Gu, D., **Guo, B.**, Ye, R., Han, L., Jin, C. & Metaxas, D.N. (2025). M^3 -Bench: Multi-Modal, Multi-Hop, Multi-Threaded Tool-Using MLLM Agent Benchmark. arXiv preprint arXiv:2511.17729 (Under review). [article](#).
- **Guo, B.**, Li, X., Yang, M., Jonnagaddala, J., Zhang, H., & Xu, X. S. (2023). Predicting microsatellite instability and key biomarkers in colorectal cancer from H&E stained images: achieving state of the art predictive performance with fewer data using swin transformer. The Journal of Pathology: Clinical Research, 9(3), 223-235. [article](#).
- **Guo, B.**, Li, X., Yang, M., Zhang, H., & Xu, X. S. (2023). A robust and lightweight deep attention multiple instance learning algorithm for predicting genetic alterations. Computerized Medical Imaging and Graphics, 105, 102189. [article](#)
- Liu, A., Li, X., Wu, H., **Guo, B.**, Jonnagaddala, J., Zhang, H., & Xu, S. (2023). Prognostic Significance of Tumor-Infiltrating Lymphocytes Determined Using LinkNet on Colorectal Cancer Pathology Images. JCO Precision Oncology, 7, e2200522. [article](#)
- Cen, M., Li, X., **Guo, B.**, Jonnagaddala, J., Zhang, H., & Xu, X. S. (2023). A Novel and Efficient Digital Pathology Classifier for Predicting Cancer Biomarkers Using Sequencer Architecture. The American Journal of Pathology, 193(12), 2122-2132. [article](#)
- Yuan, M., Ding, H., **Guo, B.**, Yang, M., Yang, Y., & Xu, X. S. (2024). Image-Based Subtype Classification for Glioblastoma Using Deep Learning: Prognostic Significance and Biologic Relevance. JCO Clinical Cancer Informatics, 8, e2300154. [article](#)