BIN WANG

(+1) 773-290-4577 | bin.wang@northwestern.edu | Google Scholar | Personal Website

Education

Northwestern University — Illinois, USA

Ph.D. student in Electrical and Computer Engineering, advisor: Prof. Ulas Bagci — Sept. 2022 – Present

ShanghaiTech University — Shanghai, China

B.E. in Computer Science and Technology, advisor: Prof. Dinggang Shen — Sept. 2018 – Jun. 2022

Research Interests

Human-centered AI: user-centric AI system for wearable device, interactive segmentation, tracking, editing (image/video), user prompt fusion.

Eye Tracking: human visual attention and perception understanding.

Foundational Model: vision-language models, multi-modal agent, visual grounded reasoning.

Industry Experience

Meta Reality Lab — Redmond, WA

Research Scientist Intern, advised by Dr. Michael Proulx — Jun. 2025 – Oct. 2025

- Developed personalized gaze-based cognitive load prediction models using large language models, integrated into internal wearable AI systems for smart glasses to enhance user experience through real-time user behavior understanding.

UII America Inc. — Boston, MA

Research Scientist Intern, advised by Dr. Ziyan Wu — Jun. 2024 – Sep. 2024

- Develop a novel interactive segmentation algorithm that explicitly incorporates missing relative depth information, establishing a new state-of-the-art for image and video interactive segmentation task.

Selected Publications (*: Contribute Equally)

[1] **Bin Wang**, Anwesa Choudhuri, Meng Zheng, Zhongpai Gao, Benjamin Planche, Andong Deng, Qin Liu, Terrence Chen, Ulas Bagci, Ziyan Wu. Order-aware Interactive Segmentation. **(ICLR, 2025)**

[2] David Wong*, **Bin Wang***, et al. Shifts in Doctors' Eye Movements Between Real and AI-Generated Medical Images. **(ETRA, 2025)**

[3] David Wong*, **Bin Wang***, et al. Eyes Tell the Truth: GazeVal Highlights Shortcomings of Generative AI in Medical Imaging. **(CVPR Workshop, 2025; Oral)**

[4] **Bin Wang**, Hongyi Pan, Armstrong Aboah, Zheyuan Zhang, Ulas Bagci. GazeGNN: A Gaze-Guided Graph Neural Network for Chest X-ray Classification. (**WACV, 2024; Early Accept**)

[5] Lin Teng*, **Bin Wang***, Xuanang Xu*, Jiadong Zhang, Lanzhuju Mei, Qianjin Feng, Dinggang Shen. Beam-wise Dose Composition Learning for Head and Neck Dose Prediction. **(Medical Image Analysis, 2024)**

[6] **Bin Wang**, Armstrong Aboah, Zheyuan Zhang, Hongyi Pan, Ulas Bagci. GazeSAM: Interactive Image Segmentation with Eye Gaze and Segment Anything Model. **(NeurIPS Workshop, 2023)**

[7] **Bin Wang**, Lin Teng, Lanzhuju Mei, Zhiming Cui, Xuanang Xu, Dinggang Shen. Deep Learning-Based Head and Neck Radiotherapy Planning Dose Prediction via Beam-wise Dose Decomposition. (**MICCAI, 2022**)

[8] **Bin Wang**, Huanyu Zhang, Ziping Zhao, Ying Sun. Globally Convergent Algorithms for Learning Multivariate Generalized Gaussian Distributions. **(IEEE Statistical Signal Processing (SSP), 2021)**

Other Publications

[1] Zheyuan Zhang, **Bin Wang**, Lanhong Yao, Elif Keles, Debesh Jha, Matthew Antalek, Gorkem Durak, Alpay Medetalibeyoglu, Concetto Spampinato, Baris Turkbey, Boqing Gong, Ulas Bagci. AdverIN: Monotonic Adversarial Intensity Attack for Domain Generalization in Medical Image Segmentation. **(Medical Image Analysis, 2025)**

[2] Andong Deng, Zhongpai Gao, Anwesa Choudhuri, Benjamin Planche, Meng Zheng, **Bin Wang**, Terrence Chen, Chen Chen, Ziyan Wu. Seq2Time: Sequential Knowledge Transfer for Video LLM Temporal Grounding. **(CVPR, 2025)**

[3] Sheng Wang, Zihao Zhao, Zhenrong Shen, **Bin Wang**, Qian Wang, Dinggang Shen. Improving Self-Supervised Medical Image Pre-Training by Early Alignment with Human Eye Gaze Information. **(IEEE Transactions on Medical Imaging (TMI), 2025)**

[4] Zheyuan Zhang, Lanhong Yao, **Bin Wang**, Debesh Jha, Gorkem Durak, Elif Keles, Alpay Medetalibeyoglu, Ulas Bagci. DiffBoost: Enhancing Medical Image Segmentation via Text-Guided Diffusion Model. **(IEEE Transactions on Medical Imaging (TMI), 2025)**

[5] Zheyuan Zhang, Elif Keles, ..., **Bin Wang**, ..., Ulas Bagci. Large-scale multi-center CT and MRI segmentation of pancreas with deep learning. **(Medical Image Analysis, 2025)**

[6] Shaoyuan Wu, Xiao Zhang, **Bin Wang**, Zhuo Jin, Hansheng Li, Jun Feng. Gaze-directed Vision GNN for Mitigating Shortcut Learning in Medical Image. (**MICCAI, 2024**)

[7] Hongyi Pan, **Bin Wang**, Zheyuan Zhang, Xin Zhu, Debesh Jha, Ahmet Enis Cetin, Concetto Spampinato, Ulas Bagci. Domain Generalization with Fourier Transform and Soft Thresholding. **(ICASSP, 2024)**

[8] Zheyuan Zhang, **Bin Wang**, Debesh Jha, Ugur Demir, Ulas Bagci. Domain Generalization with Correlated Style Uncertainty. **(WACV, 2024; Early Accept)**

[9] Armstrong Aboah, **Bin Wang**, Ulas Bagci, Yaw Adu-Gyamfi. Real-time Multi-class Helmet Violation Detection Using Few-Shot Sampling Technique and YOLOv8. **(CVPR Workshop, 2023; 7th place in 2023 AI City Challenge)**

Technical Skills

Languages & Software: Python, Matlab, SQL, C/C++, Diffuser, ITK-SNAP, 3D-Slicer, Optitrack.

Data Science & Computer Vision Toolkits: Pytorch, TensorFlow, OpenCV, PIL, Scikit-Image, Sklearn, Matplotlib, SimpleITK, Numpy, Pandas.

Interface Development Toolkits: PyQt5, QtDesigner.