Qifeng Wu

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EDUCATION

Northeastern University   **Boston, USA**
MS - Electrical and Computer Engineering, GPA: 3.91/4.00   *Sept 2021 - Apr 2024*
Concentration on Computer Vision, Machine Learning and Algorithms

University of Electronic Science and Technology of China   **Chengdu, China**
BEng - Communication Engineering, GPA: 3.63/4.00   *Sept 2017 - Jun 2021*

University of Glasgow   **Glasgow, UK**
BEng - Communication Engineering, GPA: 17.80/22.00   *Sept 2017 - Jun 2021*

PUBLICATION

- **Qifeng Wu**, Zhengzhe Liu, Han Zhu, Yizhou Zhao, Daisuke Kihara, Min Xu, "Aligning Proteins and Language: A Foundation Model for Protein Retrieval". In *CVPR 2025 Workshop on Multimodal Foundation Models in Biomedicine (MMFM-BIOMED)*
- Xingjian Li[*], **Qifeng Wu**[*], Colleen Que, Yiran Ding, Adithya S. Ubaradka, Jianhua Xing, Tianyang Wang, Min Xu. "AutoMiSeg: Automatic Medical Image Segmentation via Test-Time Adaptation of Foundation Models." *Under review at NeurIPS 2025* [arXiv:2505.17931]
- Chunhan Li, **Qifeng Wu**, Ping Liu, Jia-Hui Pan, Ka-Hei Hui, Jingyu Hu, Yuming Jiang, Bin Sheng, Xihui Liu, Wenjuan Gong, Zhengzhe Liu. "Planner and Painter Dialogue: An Iterative Framework for Enhanced Compositional Text-to-Image Generation." *Under review at SIGGRAPH Asia 2025*
- Runmin Jiang, Jackson Daggett, Shriya Pingulkar, Yizhou Zhao, Priyanshu Dhingra, Daniel Brown, **Qifeng Wu**, Xiangrui Zeng, Xingjian Li, Min Xu. "BOE-ViT: Boosting Orientation Estimation with Equivariance in Self-Supervised 3D Subtomogram Alignment." In *CVPR*, 2025

WORK EXPERIENCE

Research Intern, Computational Biology Department, School of Computer Science
Carnegie Mellon University, Pittsburgh, PA, USA   *Oct 2024 – Present*
- Working on multimodal models for protein function retrieval from 3D structural data
- Working on developing subtomogram classification pipelines to extract meaningful structural patterns from cryo-electron tomography data
- Leveraging vision-language models for medical image segmentation from vague prompts, reducing reliance on expert-designed annotations via training-free, multi-modal techniques

Student Researcher
bitHuman Inc, Boston, MA, USA   *Jun 2023 - Aug 2024*
- Led the development of an AI conversational system combining speech-to-text, LLM inference, text-to-speech, voice cloning, and emotional talking head synthesis
- Curated and augmented training data using ChatGPT; fine-tuned the LLM with parameter-efficient methods to steer its responses toward desired answers for targeted prompts
- Utilized a network quantization technique to reduce parameter precision of the LLM, enhancing inference speed without sacrificing performance
- Optimized the talking head synthesis module, smoothing the transition between emotions and improving the resolution of the rendered talking head

Intern, Data Science
Liberty Mutual Insurance, Boston, MA, USA   *Jan - Jun 2023*
- Built a multimodal retrieval pipeline using CLIP and FAISS for text-to-image and image-to-image search in insurance claim datasets
- Improved retrieval precision by aligning structured tabular data with image metadata to fine-tune CLIP encoders
- Fine-tuned BLIP-2 to enhance image captioning and VQA, automating large-scale claim documentation

ACADEMIC PROJECT

Knowledge Distillation from Foundation Model
Northeastern University   *May - Sept 2022*
- Adopted CLIP to distill semantic knowledge into lightweight CNNs (ResNet, VGG) for image classification
- Analyzed effectiveness and limitations of cross-architecture distillation from foundation to conventional models
- Findings submitted to ICLR 2023