Tingjun (Dijkstra) Liu

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EDUCATION

Washington University in St. Louis | St. Louis Aug. 2022 – Now
Bachelor of Science in Computer Science Expected in May 2026
GPA 4.0/4.0
Honors & Awards: Dean's List for Fall 2022, Spring 2023, Fall 2023, Fall 2024, & Spring 2025; Antoinette Frances Dames Award for Productive Scholarship in Engineering for Spring 2024; Junior Academic Excellence Award for Spring 2025
Advanced Courses: Large Language Model, Computer Vision, Introduction to AI for Health, Algorithms for Computational Biology, Advances in Computer Vision, GPUs for High-Performance Computing, Advanced Voice Lesson

RESEARCH EXPERIENCE

JIANG LAB, Harvard Medical School | Boston, MA Jul. 2025 – Now
Research Assistant, Supervised by Prof. Sizun Jiang
- Designed SQUAD, an LLM-driven quality-control system that builds a structured QC rule database from domain literature, retrieves context-specific criteria from inputs, auto-generates QC specifications, visualizes distributions, evaluates datasets, and guides users through iterative refinement via an intelligent advisory agent; manuscript in progress.
- Designed and implemented ProbeGPT, a scalable probe-design retrieval and optimization framework that combines semantic-embedding–based gene annotation retrieval with cross-genome sequence matching, enabling cross-species probe selection and redundancy reduction; manuscript in preparation.

The Zhang Translational Genomics Lab, Washington University School of Medicine | St. Louis, MO Jan. 2025 – Now
Research Assistant, Supervised by Prof. Jin Zhang
- Built eRT-RAG, a self-evolving multi-agent RAG system that integrates NCCN guidelines, Gunderson & Tepper, and ranked PubMed literature. It reached 97.3% accuracy on the 2021 ACR TXIT exam—well above prior LLM benchmarks—and corrected over 60% of baseline errors through dynamic evidence updates.
- Selected as the only undergraduate speaker at the 71st Radiation Research Society (RRS 2025) to present this work on evidence-based decision support in radiation oncology.
- This work was further featured at the Data Sharing & Integrated Analysis (DSIA) ROBIN Workshop at Memorial Sloan Kettering Cancer Center.

Computational Imaging Group, Washington University in St. Louis | St. Louis, MO Dec. 2024 – Now
Research Assistant, Supervised by Prof. Ulugbek S. Kamilov
- Developed a measurement-space ambient diffusion framework for brain tumor segmentation from MRI scans with partially observed or corrupted annotations, leveraging random binary corruption and DDPM-based reverse processes conditioned on T2/FLAIR modalities.
- Proposed C-MSM (Calibration-free Measurement Score-based Model), a hybrid diffusion framework for multi-coil MRI reconstruction that jointly predicts coil sensitivity maps and reconstructs undersampled k-space data under real-world constraints such as quantized measurements and missing calibration scans.
- Designed Radon-Diffusion, an measurement-space diffusion paradigm to computed tomography (CT), enabling both training and reconstruction under limited-angle and sparse-view acquisition settings through projection-domain score learning and iterative inversion in Radon space, achieving superior robustness to measurement corruption and noise.

AI for Health Institute, Washington University in St. Louis | St. Louis, MO Oct. 2024 – May 2025
Research Assistant, Supervised by Prof. Chenyang Lu
- Jointly Developed a long-horizon action segmentation model combining Transformer architectures with structured memory to recognize fine-grained cooking activities of stroke survivors.
- Designed a finite-state-machine (FSM)–based fusion module to integrate signals from both vision-language models (VLMs) and conventional video recognition pipelines.

PUBLICATION

Tingjun Liu, Chicago Y. Park, Yuyang Hu, Hongyu An, Ulugbek S. Kamilov, Measurement Score-Based MRI Reconstruction with Automatic Coil Sensitivity Estimation, *Submitted to ICASSP 2026*
Tingjun Liu, Xucheng Wang, Matthew Inkman, Julian C. Hong, Michael R. Waters, Jin Zhang. Development of a RAG-based Expert LLM for Clinical Support in Radiation Oncology. Accepted for oral presentation at *RRS 2025 Annual Meeting*.
Ruiqi Wang, Peiqi Gao, Patrick John Lynch, **Tingjun Liu**, Yejin Lee, Carolyn Baum, Lisa Tabor, Chenyang Lu, CHEF-VL: Detecting Cognitive Sequencing Errors in Cooking with Vision-Language Models, *Accepted to UbiComp 2026*

CONFERERENCE

Selected Speaker, **The 71st Annual Meeting of the Radiation Research Society** | San Juan, Puerto Rico Sep. 2025
Invited Presenter, DSIA Workshop, ROBIN Network | Memorial Sloan Kettering Cancer Center Oct. 2025

TECHNICAL SKILLS

Programming, Tools & Libraries: Python, C/C++, CUDA, Java, JavaScript; PyTorch, Flask, Django, React; MySQL, MongoDB, ChromaDB; Git, Docker, AWS, GPT APIs
Bio/Machine learning Models: Diffusion Models, Transformers, CNNs, MAE, CLIP…; MEME, EM…

MEMBERSHIP

Student Member, Tau Beta Pi Engineering Honor Society Inducted 2024

LEADERSHIP EXPERIENCE

Founder & President, Washington University Chinese Groundbreakers | St. Louis Jul. 2024 – Now
Lead Software Developer, Cogno – AI-Powered E-commerce Assistant Startup | St. Louis Jul. 2023 – Jun. 2024
Lead Singer, The Half-body Harp – Rock Band | St. Louis Oct. 2023 – Jan. 2025