

# 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:** Antoinette Frances Dames Award in Engineering for Spring 2024; Junior Academic Excellence Award for Spring 2025; Ernest D. Weiss Senior Award for Academic Excellence for Spring 2026.

**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

**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.

**JIANG LAB, Harvard Medical School** | Boston, MA Jul. 2025 – Mar. 2026  
*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.

**Computational Imaging Group, Washington University in St. Louis** | St. Louis, MO Dec. 2024 – Jan. 2026  
*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.

**AI for Health Institute, Washington University in St. Louis** | St. Louis, MO Aug. 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

**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*

## CONFERENCE

**Selected Speaker, The 71<sup>st</sup> 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

**Machine learning Models:** Diffusion Models, Transformers, CNNs, MAE, CLIP, DINO

## 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