Junming Liu

✉ liu_junming6917@tongji.edu.cn · 🎓 Google Scholar · ⚙ GitHub · ⚲ Personal Website ·

Education

Tongji University, Shanghai, China   *Setp. 2023 – Present*
Master Student in Computer Science (CS), expected March 2026
- GPA: 90.0/100
- Research Interests: Multimodal Learning, Multimodal Large Language Models, Multi-Agent Interaction

Dalian Maritime University, Dalian, China   *Sept. 2019 – July 2023*
B.S. in Intelligent Science and Technology (IST)
- GPA: 84.0/100

Publications   * Equal Contribution   † Corresponding Author

[1] **Junming Liu**, Siyuan Meng, Yanting Gao, *et al. Aligning Vision to Language: Annotation-Free Multimodal Knowledge Graph Construction for Enhanced LLMs Reasoning.* ICCV 2025 (Accepted).

[2] **Junming Liu**, Yifei Sun, Weihuang Cheng, *et al. ReBrain: Brain MRI Reconstruction from Sparse CT slice via Retrieval-Augmented Diffusion.* WACV 2026 (Accepted).

[3] Aoqi Wu[*], **Junming Liu**[*], Yuwei Zhang, *et al. AMID: Model-Agnostic Dataset Distillation by Adversarial Mutual Information Minimization.* WWW 2026 (Accepted).

[4] Yujin Kang[*], **Junming Liu**[*], Haiyan Cui[†]. *AI-Driven Assessment of Lip Volume Improvement Using Hyaluronic Acid Fillers: A Comprehensive Analysis.* Aesthetic Plastic Surgery (Accepted).

[5] **Junming Liu**, Yusen Zhang, Rongchao Zhang, Wenkai Zhu, Tian Wu[†]. *Domain-Adaptive Model Merging Across Disconnected Modes.* ICASSP 2026 (Accepted).

[6] Pei Liu, Xin Liu, Ruoyu Yao, **Junming Liu**, *et al. HM-RAG: Hierarchical Multi-Agent Multimodal Retrieval Augmented Generation.* ACM MM 2025 (Accepted).

[7] Yanting Gao, Yepeng Liu, **Junming Liu**, *et al. Boosting Adversarial Transferability via Commonality-Oriented Gradient Optimization.* PRCV 2025 (Accepted).

[8] **Junming Liu**, Yanting Gao, Yifei Sun, *et al. FedRecon: Missing Modality Reconstruction in Heterogeneous Distributed Environments.* IEEE Transactions on Multimedia (Under Review).

[9] **Junming Liu**, Yanting Gao, Siyuan Meng, *et al. Mosaic: Data-Free Knowledge Distillation via Mixture-of-Experts for Heterogeneous Distributed Environments.* Pattern Recognition (Under Review).

[10] Siyuan Meng[*], **Junming Liu**[*], Yirong Chen, *et al. From Ranking to Selection: A Simple but Efficient Dynamic Passage Selector for Retrieval Augmented Generation.* SIGIR 2026 (Under Review).

[11] Yifei Sun, **Junming Liu**, Yirong Chen, *et al. TimeMKG: Knowledge-Infused Causal Reasoning for Multivariate Time Series Modeling.* Expert Systems with Applications (Under Review).

[12] **Junming Liu**[*], Yifei Sun[*], Weihua Cheng, *et al. MemVerse: Multimodal Memory for Lifelong Learning Agents.* CVPR 2026 (Under Review).

[13] **Junming Liu**[*], Yuqi Li[*], Mengyue Dai, *et al. L-APO: Enhancing Long-Context Retrieval-Augmented Generation via Adversarial Preference Optimization.* ACL 2026 (Under Review).

[14] **Junming Liu**, Yuqi Li, Shiping Wen, *et al. ReCross: Recovering Cross-Modal Specificity Beyond Alignment.* ICML 2026 (Under Review).

Honors and Awards

- **Leadership and Communication Scholarship**   *Sept. 2020*
  Dalian Maritime University
- **Excellent Student Scholarship (10%)**   *Sept. 2021*
  Dalian Maritime University
- **Excellent Student Scholarship (10%)**   *Sept. 2022*
  Dalian Maritime University

- **National College Mathematics Competition, National First Prize (1%)** *Dec. 2022*
  Chinese Mathematical Society

RESEARCH EXPERIENCE

- **Text Sentiment Analysis Based on BERT Model** **Dalian Maritime University**
  Advisor: Prof. Yijia Zhang *Sept. 2021 – May. 2022*
  - **Motivation:** Investigate public opinion tendencies on social media during the COVID-19 pandemic.
  - **Methods:** Enhanced BERT by integrating LDA topic modeling and fine-tuned the combined model for text sentiment analysis.
  - **Results:** Achieved 95% accuracy in analyzing public sentiment on social media posts and submitted a patent titled *"Text Review Sentiment Classification Method Based on Topic-Fused BERT and Medium"*.

- **Vision-Language Models for Medical Imaging** **Tongji University**
  Advisor: Prof. Guosun Zeng *Sept. 2023 – Dec. 2025*
  - **Motivation:** Brain medical images contain complex structures that are difficult to interpret reliably, motivating the use of VLMs to enable structured and interpretable reasoning.
  - **Methods:** Used DDPM with ControlNet to perform high-fidelity reconstruction that preserves anatomical consistency across modalities, fine-tuned VLMs for brain abnormality detection and segmentation with traceable and interpretable reasoning, and incorporated privacy-preserving, distributed techniques for efficient lightweight collaboration of large models across heterogeneous hospitals.
  - **Results:** Achieved improved modality-aligned reconstruction and enhanced brain tumor detection and segmentation on SynthRAD2023, BraTS, etc., demonstrating strong robustness even under Non-IID data distributions. Some of this work has been accepted or submitted to top-tier conferences.

- **Multimodal Large Language Model Reasoning** **Shanghai Artificial Intelligence Laboratory**
  Advisor: Dr. Ding Wang *Jan. 2025 – Present*
  - **Motivation:** Explore efficient and interpretable reasoning methods for MLLMs.
  - **Methods:** Developed an annotation-free multimodal knowledge graph module to enhance reasoning, designed a long-context prompt comprehension framework to guide outputs and align responses with input semantics, studied partial alignment of different modalities to preserve shared and modality-specific information, and built an agent-memory mechanism for multi-turn interaction.
  - **Results:** Achieved improved performance and robustness across multimodal benchmarks, with some work accepted to ICCV 2025 and ACM MM 2025, and others submitted to ACL 2026 and CVPR 2026.

INTERNSHIP EXPERIENCE

- **Shanghai NIO Automobile Co., Ltd.** *June. 2023 – Sept. 2023*
  - Controlled steering and braking systems under tire blowout scenarios using image and radar data to prevent rollover and loss of control.

- **Beijing Jinxixin Network Technology Co., Ltd.** *Oct. 2024 – Dec. 2024*
  - Constructed and trained vertical domain large models for maritime law scenarios.

- **Shanghai Artificial Intelligence Laboratory** *Jan. 2025 – Present*
  - Conducted research on multimodal large language models.

SKILLS

- Language: Chinese (native), English (IELTS: 7.0), Japanese, Germany
- Programming: C, C++, Python, Java, Go, SQL, Rust, MPI, NCCL, DeepSpeed, DDP, FSDP

CAMPUS EXPERIENCE

- Member of the Art Troupe, School of Information Science and Technology, Dalian Maritime University
  Sept. 2019 – June. 2022
- Member of the Student Union, School of Electronics and Information Engineering, Tongji University
  Sept. 2023 – June. 2024