

QI LIU

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EDUCATION

Renmin University of China PhD Student, Artificial Intelligence Gaoling School of Artificial Intelligence Advisor: Assoc. Prof. Jiaxin Mao	Sept. 2024 -Present. <i>Beijing, China</i>
Renmin University of China Bachelor of Engineering, Artificial Intelligence Gaoling School of Artificial Intelligence	Sept. 2020 - June. 2024 <i>Beijing, China</i>

RESEARCH INTERESTS

My research interests lie in information retrieval and natural language processing, specifically in:

- large language models for retrieval and ranking
- retrieval-augmented generation and search agent

EXPERIENCE

Hi Lab, Xiaohongshu Internship	July. 2023 - Sept. 2023 <i>Beijing, China</i>
• Developing large language models, specifically in the preparation of pre-training data, including data processing, data quality verification, data cleaning strategy exploration, etc.	
Jina AI Research Internship	Nov. 2023 - June. 2024 <i>Beijing, China</i>
• Developing the English-Chinese bilingual embedding model <code>jina-embeddings-v2-base-zh</code> . • Developing the long-context late-interaction model <code>jina-colbert-v1-en</code> .	
Tongyi Lab, Alibaba Research Internship	May. 2025 - Jan. 2026 <i>Beijing, China</i>
• Focusing on embedding/reranking models.	
NExT++ Research Center, National University of Singapore Visiting PhD Student	Jan. 2026 - Presents. <i>Singapore</i>
• Focusing on Agentic Search.	

PUBLICATIONS

1. **DiffuRank: Effective Document Reranking with Diffusion Language Models**
Qi Liu, Kun Ai, Jiaxin Mao, Yanzhao Zhang, Mingxin Li, Dingkun Long, Pengjun Xie, Fengbin Zhu, Ji-Rong Wen
Preprint 2026.1.
2. **E²Rank: Your Text Embedding can Also be an Effective and Efficient Listwise Reranker**
Qi Liu, Yanzhao Zhang, Mingxin Li, Dingkun Long, Pengjun Xie, Jiaxin Mao
Preprint 2025.10.

3. **How do Large Language Models Understand Relevance? A Mechanistic Interpretability Perspective**
Qi Liu, Jiaxin Mao, Ji-Rong Wen
ACM Transactions on Information Systems. (*TOIS* 2025)
4. **LLM4Ranking: An Easy-to-use Framework of Utilizing Large Language Models for Document Reranking**
Qi Liu, Haozhe Duan, Yiqun Chen, Quanfeng Lu, Weiwei Sun, Jiaxin Mao
Preprint 2025.4.
5. **Leveraging Passage Embeddings for Efficient Listwise Reranking with Large Language Models**
Qi Liu, Bo Wang, Nan Wang, Jiaxin Mao
Proceedings of the ACM Web Conference 2025. (*WWW* 2025)
6. **TourRank: Utilizing Large Language Models for Documents Ranking with a Tournament-Inspired Strategy**
Yiqun Chen, **Qi Liu**, Yi Zhang, Weiwei Sun, Daiting Shi, Jiaxin Mao, Dawei Yin
Proceedings of the ACM Web Conference 2025. (*WWW* 2025)
7. **Mamba Retriever: Utilizing Mamba for Effective and Efficient Dense Retrieval**
Hanqi Zhang, Chong Chen, Lang Mei, **Qi Liu** and Jiaxin Mao
Proceedings of the 33rd ACM International Conference on Information and Knowledge Management. (*CIKM* 2024)
8. **Multi-Task Contrastive Learning for 8192-Token Bilingual Text Embeddings**
Isabelle Mohr, Markus Krimmel, ..., **Qi Liu**, ..., Bo Wang, Maximilian Werk, Nan Wang, Han Xiao
Preprint 2024.2.
9. **An Analysis on Matching Mechanisms and Token Pruning for Late-interaction Models**
Qi Liu*, Gang Guo*, Jiaxin Mao, Zhicheng Dou, Ji-Rong Wen, Hao Jiang, Xinyu Zhang, Zhao Cao
ACM Transactions on Information Systems. (*TOIS* 2023)
10. **Understanding the Multi-vector Dense Retrieval Models**
Qi Liu and Jiaxin Mao
The 32nd ACM International Conference on Information and Knowledge. (*CIKM* 2023)