Tang Qian

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EDUCATION

Zhejiang University   Hangzhou, China
M.S., Computer Science and Technology   *Sep. 2023 - Present*
- Research focus: Vector Search, Distributed Systems, Big Data Analysis

Southwest Jiaotong University   Chengdu, China
B.S., Computer Science   *Sep. 2019 - Jun. 2023*
- Research focus: Spatio-temporal data analysis and graph neural networks

PROFESSIONAL EXPERIENCE

High-Dimensional Data Retrieval Systems   2025 - Present
Submitting to VLDB 2026   *Zhejiang University*
- Exploring approximation algorithms to improve query throughput in distributed nearest neighbor search
- Developing techniques to handle data skew and load balancing in graph-based distributed indexes
- Conducting benchmark evaluation against state-of-the-art vector search systems on industry-standard datasets

Distributed Indexing for Metric Space   2023 - 2024
Accepted by TKDE 2025   *Zhejiang University*
- Designed and implemented a scalable distributed architecture using Spark for processing large-scale metric datasets
- Optimized data partitioning algorithms to reduce network communication overhead by 40% while maintaining search accuracy
- Conducted extensive experimental evaluation using real-world datasets with over 10 million high-dimensional vectors

Multi-Modal Data Similarity Search Framework   2024 - 2025
Submitting to VLDB 2026   *Zhejiang University*
- Developed a distributed framework for multi-modal data similarity search that supports efficient querying across heterogeneous data types
- Designed a dual-layer indexing strategy combining global partitioning with modality-specific local indexes to optimize search performance
- Implemented a lightweight weight learning model that efficiently captures inter-modality relationships with minimal training examples
- Achieved 2.5-5.75$\times$ performance improvement over state-of-the-art solutions and 12-30% higher accuracy in experimental evaluation

Query-aware Vector Database System   2024 - 2025
Accepted by TKDE 2026   *Zhejiang University*
- Developing core system components for efficient vector search with dynamic query optimization
- Implementing cost-based query planning algorithms to adaptively select optimal index structures

Graph-based Traffic Analysis Platform   2021 - 2022
Accepted by IJCNN 2022   *Southwest Jiaotong University*
- Built data preprocessing pipeline for cleaning and normalizing traffic sensor data from multiple urban sources
- Implemented spatio-temporal graph neural network models using Python and PyTorch
- Designed interactive visualization dashboard to present traffic patterns and prediction results to stakeholders

PUBLICATIONS

Yifan Zhu, Chengyang Luo, **Tang Qian**, Lu Chen, Yunjun Gao, and Baihua Zheng. *DIMS: Distributed Index for Similarity Search in Metric Spaces. IEEE Trans. Knowledge Data Eng.* (TKDE), 2024.

Boyu Tan, **Tang Qian**, Ziquan Fang, Lu Chen, Mengzhao Wang, Qilong Wang, and Jingwen Zhao. *QBase: A Query Aware Vector Search System. IEEE Trans. Knowledge Data Eng.* (TKDE), to appear 2026.

Jiabin Tang, **Tang Qian**, Shijing Liu, Shengdong Du, Jie Hu, and Tianrui Li. *Spatio-Temporal Latent Graph Structure Learning for Traffic Forecasting. International Joint Conference on Neural Networks* (IJCNN), 2022.

ACADEMIC EXPERIENCE

- Oral Presentation in IJCNN 2022, Padua, Italy, July 18-23, 2022
- Participant in the 22nd China Computer Federation (CCF) Summer School on Chinese Databases

SELECTED AWARDS AND HONORS

Graduate Awards - Zhejiang University

- Huawei Elite Scholarship (Top 2%), 2023
- First-class Student Scholarship in Zhejiang University (Top 3%), 2023
- First Prize in 2024 CCF China Database Summer Competition
- Outstanding Graduate Student, 2023
- Excellent Graduate Student Leader, 2023
- Outstanding Youth League Member, 2023

Undergraduate Awards - Southwest Jiaotong University

- Outstanding Graduate of Sichuan Province, 2023
- Sishi Yanghua Medal of Southwest Jiaotong University (Top 0.1%), 2022
- First-class Scholarship of Leeds School (2021-2022), 2022
- Outstanding Youth League Cadre of Southwest Jiaotong University, 2022
- Exemplary Outstanding Student of Southwest Jiaotong University, 2021
- First-class Scholarship of Leeds School (2020-2021), 2021
- University-level Model League Branch Honor, 2021
- National Scholarship, 2020
- Outstanding Student of Southwest Jiaotong University, 2020

SKILLS & EXTRACURRICULAR INTERESTS

- C++, Scala, Python, Spark, Hadoop, Distributed Computing
- President of Student Union of College of Computer Science and Technology, Zhejiang University, 2023-2024.
- Class Monitor for Software Engineering Class 6, Grade 2023, Zhejiang University, 2023-2025.
- Deputy Secretary of the College League Committee, Southwest Jiaotong University, 2021-2023
- President of the College Student Union, Southwest Jiaotong University, 2021-2022
- Class Monitor for Computer Science Class 1, Grade 2019, Southwest Jiaotong University, 2020-2023