

# Tianhao Wu

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## Research interests

Graph Computing, Data Mining,  
High-Performance Computing, Mathematical Optimization

## Education

### Tsinghua University

Beijing, China

Ph.D. in Computational Mathematics

Sept. 2020 – June 2025

Mentor: Professor Zhongyi Huang.

GPA: 3.83 / 4.0

### Tianjin University

Tianjin, China

B.S. in Mathematics and Applied Mathematics

Sept. 2016 – June 2020

GPA: 3.84 / 4.0

B.E. in Computer Science and Technology (minor)

GPA: 3.77 / 4.0

## Honors and scholarships

First-class of Wuhan Excellence Scholarship 2024

Second-class of Jiukun Excellence Scholarship 2023

Second-class of Pinghu Excellence Scholarship 2022

First-class of Excellence Scholarship 2021

## Publications

### CompreGel: Efficient Distributed Graph Propagation via Error-Bounded Lossy Message Compression

Tianhao Wu<sup>\*</sup>, Da Yan<sup>\*†</sup>, Qihao Cheng<sup>\*</sup>, Lyuheng Yuan, Sheng Di, Jiao Han, Zhongyi Huang, Ji Cheng.

*Proceedings of the International Conference on Parallel Processing (ICPP), 2025.*

### Computing Approximate Graph Edit Distance via Optimal Transport

Qihao Cheng<sup>\*</sup>, Da Yan<sup>\*†</sup>, Tianhao Wu<sup>\*</sup>, Zhongyi Huang, Qin Zhang.

*Proceedings of the ACM on Management of Data (SIGMOD), 2025.*

### Efficient Enumeration of Large Maximal $k$ -Plexes

Qihao Cheng<sup>\*</sup>, Da Yan<sup>\*</sup>, Tianhao Wu<sup>\*†</sup>, Lyuheng Yuan, Ji Cheng, Zhongyi Huang, Yang Zhou.

*Proceedings of the International Conference on Extending Database Technology (EDBT), 2025.*

### The Optimal Production Transport: Model and Algorithm

Jie Fan, Tianhao Wu, Hao Wu<sup>†</sup>.

*East Asian Journal on Applied Mathematics, 2024.*

**ClipSim: A GPU-friendly Parallel Framework for Single-Source Sim-Rank with Accuracy Guarantee**

**Tianhao Wu**, Ji Cheng, Chaorui Zhang<sup>†</sup>, Jianfeng Hou, Gengjian Chen, Zhongyi Huang, Weixi Zhang, Wei Han, Bo Bai.

*Proceedings of the ACM on Management of Data (SIGMOD)*, 2023.

**The Double Regularization Method for Capacity Constrained Optimal Transport**

**Tianhao Wu**, Qihao Cheng, Zihao Wang, Chaorui Zhang, Bo Bai, Zhongyi Huang, Hao Wu<sup>†</sup>.

*CSIAM Transactions on Applied Mathematics*, 2023.

**A Novel AI-based Framework for AoI-optimal Trajectory Planning in UAV-assisted Wireless Sensor Networks**

**Tianhao Wu**, Jianfeng Liu, Juan Liu, Zhongyi Huang, Hao Wu, Chaorui Zhang<sup>†</sup>, Bo Bai, Gong Zhang.

*IEEE Transactions on Wireless Communications (TWC)*, 2022.

Skills

**Programming**

C++, CUDA C/C++, MPI/OpenMP, and Python.

**Language**

English - CET6 (564).

Teaching experience

**Teaching assistant, Tsinghua University**

Fall 2020 – Present

Advanced Numerical Analysis,

Physical-Mathematical Equations and Special Functions,

Discrete Mathematics,

Probability and Mathematical Statistics.