Dayi Fan (Davis)

Personal Info

Email : fan.1090@osu.edu
Homepage : https://davis-fan.github.io/
GitHub : https://github.com/Davis-Fan
Address : Columbus, Ohio, U.S.

Education

2022.01-CURRENT
Ph.D. candidate in Computer Science and Engineering,
The Ohio State University, U.S.
Advised by **Prof. Xiaodong Zhang**
Topic: *Parallel Algorithm Design and its Hardware Acceleration for Irregular Datacentric Applications*

2021.01-2021.05
Undergraduate Exchange in Computer Science,
National University of Singapore, Singapore
Advised by Prof. Trevor E. Carlson
Project: LSTM implementation with spiking neural networks

2017.09-2021.07
B.Eng. in Microelectronics Science and Engineering,
Southern University of Science and Technology, China
Advised by Prof. Quan Chen
Project: RRAM-based neural network optimization

Publications

2025
X-Blossom: Massive Parallelization of Graph Maximum Matching [PDF]
Dayi Fan, Rubao Lee, Xiaodong Zhang

The 51st International Conference on Very Large Databases (VLDB 2025), London, U.K.

- proposed new sequential and parallel algorithms for finding maximum matching in general graphs
- benefits graph applications in quantum computing, social platforms, and financial systems

2024 **X-TED: Massive Parallelization of Tree Edit Distance** [PDF]
Dayi Fan, Rubao Lee, Xiaodong Zhang

The 50ᵗʰ International Conference on Very Large Databases (VLDB 2024), Guangzhou, China

- proposed a new parallel algorithm that breaks data dependencies in dynamic programming
- supports ML evaluation workflows in Natural Language Processing

2024 **RR-Compound: RDMA-Fused gRPC for Low Latency, High Throughput, and Easy Interface** [PDF]
Liang Geng, Hao Wang, Jingsong Meng, **Dayi Fan**, Sami Ben-Romdhane, Hari Kadayam Pichumani, Vinay Phegade, Xiaodong Zhang

IEEE Transactions on Parallel and Distributed Systems (TPDS 2024)

- integrated gRPC with RDMA for low latency and high throughput
- validated on key–value storage (KV-store) and machine learning workloads (TensorFlow)

SUBMITTED WORK

2026 X-Wim: Massive Parallelization of Weighted Matching in Bipartite Graphs
Dayi Fan, Simon Zhang, Rubao Lee, Hanqi Guo, Xiaodong Zhang

2026 Performance Insights and Implications of Traversal-based Graph Analytics on both Multi-core CPUs and GPUs
Jiaxin Liu, **Dayi Fan**, Rubao Lee, Cathy Xia, Xiaodong Zhang

RESEARCH INTEREST

My current research focuses on parallel computing, algorithm engineering, and data management in computer systems. I have developed state-of-the-art parallel solutions for two fundamental problems in computer science — tree edit distance and graph maximum matching — including both innovative algorithm design and efficient hardware implementation on multicore CPUs and GPUs. These works have been recognized through publications at the prestigious Very Large Data Bases (VLDB) conference over the past two years (VLDB 2024 and VLDB 2025).

I am also open to ML-related research topics and have hands-on experience with Transformers, LSTM, and CNN models. I am interested in AI-driven challenges in

system design and databases, such as accelerating model training and enhancing data retrieval efficiency.

TEACHING EXPERIENCE

2022.01-2024.05 Graduate Teaching Assistant
CSE 3421 Computer Architecture
The Ohio State University

ACADEMIC PERFORMANCE

Postgraduate GPA: 3.951/4.000
Undergraduate GPA: 3.90/4.00

2021.06   Excellent Graduate Award
Southern University of Science and Technology

2017-2020   First Class Student Scholarship (Top 5%, three consecutive years)
Southern University of Science and Technology

ADDIONALS

Languages: English, Chinese, Cantonese

Music: Cello and Piano

Enthusiast: Photography and Cooking