Yue Jin

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RESEARCH INTERESTS

Sparse Computing, Graph Computing, Compiler Optimization, Domain-Specific Languages (DSL).

INDUSTRY EXPERIENCE

Ant Group Hangzhou, China
Senior Software Engineer Oct. 2018 — Present

- Developed G-Sparse, a compiler-based Graph Computing Optimization Framework.
- Developed GraphGen, a distributed graph sampling engine.
- Developed Woodpecker, a compiler-based computational optimization framework.

Alibaba Group Hangzhou, China
Software Engineer Apr. 2015 — Oct. 2018

- Developed JSNI, the first standardized native **I**nterface for **J**ava**S**cript and **N**ative C/C++ code interactions, widely adopted by Alibaba Group and other industry companies.
- Enhanced the Multithreaded V8 JavaScript Virtual Machine Project by optimizing its garbage collection module.

EDUCATION

Zhejiang University, Hangzhou, China Sep. 2012 — Mar. 2015
Master of Engineering in Electrical Engineering

Zhejiang University, Hangzhou, China Sep. 2008 — Jun. 2012
Bachelor of Engineering in Electronic & Information Engineering

PUBLICATIONS

G-Sparse: compiler-driven acceleration for generalized sparse computation for graph neural networks on modern GPUs.
Y. Jin, C. Huan, H. Zhang, Y. Liu, S. L. Song, R. Zhao, Y. Zhang, C. He, W. Chen.
PACT 2023.

TEA+: a novel temporal graph random walk engine with hybrid storage architecture.
C. Huan, Y. Liu, H. Zhang, S. Song, S. Pandey, S. Chen, X. Fang, **Y. Jin**, B. Lepers, H. Liu, Y. Wu.
ACM TACO 2024.

GraphRPM: risk pattern mining on industrial large attributed graphs.
S. Tian, X. Zeng, Y. Hu, B. Wang, Y. Liu, **Y. Jin**, C. Meng, C. Hong, T. Zhang, W. Wang.
ECML PKDD 2024.

GraphGen: a distributed graph sample generation framework on industry-scale graphs.
Y. Jin, S. Tian, Y. Liu, C. Hong.
EuroSys 2024 (poster track).

GPC: compiler-based optimization for sparse computations in graph neural networks.
Y. Jin, Y. Liu.
EuroSys 2023 (poster track).

SELECTED PROJECTS

Large Scale Graph Reasoning Engine - GraphCoT Hangzhou, China
Mar. 2024 — Present

- Led the development of the large-scale GraphCoT engine at Ant Group to improve knowledge extraction and information retrieval in graph-based tasks.

Compiler-based Graph Computing Optimization Framework– G-Sparse Hangzhou, China
Mar. 2022 — Present

- Led the development of G-Sparse, a high-performance sparse computing compiler framework for generalized sparse computations, achieving significant performance improvements over existing methods.

- Empowered real-time graph analytics in production systems, bridging cutting-edge compiler techniques with practical deployment.
- Published papers in PACT 2023 and contributed to open-source libraries and frameworks (Halide, TuGraph).

Distributed Graph Sampling Engine - GraphGen Hangzhou, China
Mar. 2022 — Present

- Led the development of GraphGen, a distributed graph sampling engine, processing 10 million nodes per second—20× faster than SQL-based solutions—and significantly improving sample generation for industry-scale graphs.

Compiler-based Performance Optimization Framework - Woodpecker Hangzhou, China
Oct. 2018 — Mar. 2022

- Developed a domain-specific language (DSL) compiler (based on Halide) and a data-driven cost model, reducing auto-tuning time from minutes to seconds.
- Achieved 1.2× to 1.7× speedup on various large-scale graph-based computing models, based on compiler optimization and auto-fusion techniques.

TALKS

G-Sparse: Compiler-driven acceleration for generalized sparse computation for graph neural networks.
PACT Conference 2023.

AWARDS

Most Innovative Spirit Award Hangzhou, China
Excellent Engineer: Most Innovative Spirit Award, Ant Group. 2021

ENGLISH

TOEFL (iBT): 102 (overall score) Test date: Oct. 2024

SKILLS

- Programming Languages: C/C++, Python, JavaScript
- Frameworks/Tools: Halide, Triton, TVM, MLIR, DGL
- Systems: Node.js/V8, Linux/GNU, ARM/x86