Dr. YuAng Chen

Postdoctoral Scholar · HPC for AI · C++ · CUDA

yuangchen@cuhk.edu.hk | https://yuang-chen.github.io | https://www.linkedin.com/in/yuang-chen/

Education

The Chinese University of Hong Kong, Shenzhen *Shenzhen, China*
Doctor of Philosophy in Computer and Information Engineering *2020.01 - 2022.06*
- Parallel Computing, Graph Algorithms, Graph Neural Networks

Eindhoven University of Technology & Technical University of Berlin *Netherlands & Germany*
Master of Science in Multicore Systems *2015.08 - 2018.10*
- Dual Degrees with Full European Union Scholarship

Huazhong University of Science and Technology *Wuhan, China*
Bachelor of Engineering in Electronic Science and Technology *2011.08 - 2016.06*
- Exchange Student at RWTH Aachen, Germany with CSC Scholarship

Work Experience

The Chinese University of Hong Kong *Hong Kong, China*
Postdoctoral Scholar *2023.02 - Present*
- Sparsification of Large Language Models (LLMs)
- Deploy sparse computations (SpMM, SDDMM, SpGEMM) on Tensor Cores of GPUs
- Vectorize lightweight sparse computation (SpMV) with SIMD on Intel & ARM CPUs

International Digital Economy Academy *Shenzhen, China*
Intern *2022.10 - 2022.12*
- Optimize parallel graph algorithms (PageRank, Connected Components and etc.) for fraud detections

Oneflow *Remote*
Intern *2022.07 - 2023.09*
- Develop GNN models from python architecture to CUDA kernels within Oneflow framework
- Implement sampling policy for mini-batch GNN training

Fraunhofer FOKUS *Berlin, Germany*
Intern *2017.04 - 2018.06*
- Worked on the simulation and quality verification of Germany's health card system
- Implemented the handshake protocol and TLS secured communication channel between the IC card and the client device

Publications

Published

YuAng Chen and Yeh-Ching Chung, "Workload Balancing via Graph Reordering on Multicore Systems," IEEE Transactions on Parallel and Distributed Systems (TPDS), Vol. 33, No. 5, 2022, pp. 1231-1245.

YuAng Chen and Yeh-Ching Chung, "HiPa: Hierarchical Partitioning for Fast Page Rank on Multicore Systems," Proceedings of IEEE International conference on Parallel Processing (ICPP), Article No. 24, 2021, pp. 1-10.

YuAng Chen and Yeh-Ching Chung, "Corder: Cache-Aware Reordering For Optimizing Graph Analytics," Proceedings of ACM International conference on Principles and Practice of Parallel Programming (PPoPP), 2021, pp.472-473.

YuAng Chen and Yeh-Ching Chung, "An Unequal Caching Strategy for Shared-Memory Graph Analytics," IEEE Transaction on Parallel and Distributed Systems (TPDS), Vol. 34, No. 3, 2023, pp. 955-967.

YuAng Chen and Yeh-Ching Chung, "Connectivity-Aware Link Analysis for Skewed Graphs," Proceedings of International Conference on Parallel Processing (ICPP), pp. 482-491. 2023.

YuAng Chen and Jefferey Xu Yu, "Accelerating SpMV for Scale-Free Graphs with Optimized Bins." In 2024 IEEE 40th International Conference on Data Engineering (ICDE), pp. 2407-2420. 2024.

YuAng Chen, and Jeffrey Xu Yu. "Bitmap-Based Sparse Matrix-Vector Multiplication with Tensor Cores." Proceedings of the 53rd International Conference on Parallel Processing, pp. 1135-1144. 2024

YuAng Chen, and Jeffrey Xu Yu. ”Efficient SpMV for Graph Matrices Through Vectoring and Caching..” Proceedings of the 30th European Conference on Parallel and Distributed Processing, pp. 356-370. 2024

In Review & Prep

YuAng Chen and Yeh-Ching Chung, ”Rebo: Reordering and Blocking for Graph-Oriented SpMV”, ICDE’25

YuAng Chen and Jeffery Xu Yu, ”Triangle Counting on Tensor Cores”, PPoPP’25

YuAng Chen, Wenqi Zeng, Siyi Teng, and Jeffery Xu Yu, ”Unleashing The Potential of Tensor Cores for GNN”, ASPLOS’25

YuAng Chen, Jiadong Xie, Wenqi Zeng, Siyi Teng, and Jeffery Xu Yu, ”Graph Reordering for Fast GNNs on Tensor Cores”, EuroSys’25

Wenqi Zeng, YuAng Chen, ”A Unified Framework for Sparse Matrix Computations on Dense Matrix Accelerators”, TPDS’25