JIHU GUO

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EDUCATION

National University of Defense Technology (NUDT, Project 985) **2021 - Present**
Computer Science and Technology.
Main courses: Parallel Programming, Artificial Intelligence, Advanced Computer Network.

China Agricultural University (CAU, Project 985) **2017 - 2021**
Computer Science and Technology.
Main courses: Computer Architecture, Operating System, Machine Learning, Computer Network.

RESEARCH EXPERIENCE

Pezy-SC3s Architecture Based SpMV Optimization. **NUDT, 2022.12-Present**
•We optimize the most widely used CSR-based SpMV on Pezy-SC3s. Our methods include chunking matrix according to the cache architecture to improve cache locality, applying Atomic Cache, which is provided by Pezy-SC3s architecture, to perform work distribution to improve workload balance, and using SIMD instructions to achieve better vectorization. Finally, we achieve a maximum speedup of 17.63 and an average speedup of 1.56.

AI for SpMV Optimization. **NUDT, 2021.9-Present**
•Converting the matrix into an image and later using CNN to classify the matrix and selecting the appropriate sparse matrix format for SpMV. this approach can achieve an average speedup ratio of 1.507 compared to using only CSR format for SpMV.

Leaf Segmentation Contest. **CAU, 2020.2-2020.7**
•Using Mask-RCNN to perform leaf segmentation. Our goal is to count and identify all the leaves that appear in an image and we successfully implemented the Mask-RCNN for leaf recognition.

RESEARCH PUBLICATIONS

Accepted:
•Optimizing CSR-Based SpMV on a New MIMD Architecture Pezy-SC3s — Jihu Guo, Jie Liu, Qinglin Wang, Xiaoxiong Zhu. ICA3PP 2023 (Link)

Under Review:
•An accurate Sparse Matrix Format Selection Method based on Deep Learning (Submitted for publication) — Jihu Guo, Jie Liu, Qinglin Wang, Xiaoxiong Zhu. (Link)

AWARDS & HONORS

Outstanding Student Scholarship **NUDT, 2021**
MCM/ICM Finalists Award **CAU, 2020**
National Scholarship (Highest scholarship from Ministry of Education of China) **CAU, 2020**
JinLongYu Scholarship (GPA rank No.1 award) **CAU, 2019**
First Level Scholarship **CAU, 2019, 2020**
Second Level Scholarship **CAU, 2018**

SKILLS

Language: C, C++ (LeetCode Link), Python.
Developer Tools: PyCharm, VS Code, Visual Studio, Github, Pezy-SC3s.
Framework: Pytorch, CUDA.