Daegun Yoon

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POSITIONS

Researcher in **SK hynix**, Republic of Korea — Oct. 2024 - Present

Researcher in Electronics and Telecommunications Research Institute (**ETRI**), Republic of Korea — Jan. 2024 - Oct. 2024

EDUCATION

Ph.D. in Department of Artificial Intelligence, Ajou University, Republic of Korea — Sep. 2018 - Feb. 2024
Advisor: Prof. Sangyoon Oh

- Dissertation: Dynamic Gradient Sparsification Exploiting Aggregated Gradients for Scalable Distributed Deep Learning

B.S. in Department of Software, Ajou University, Republic of Korea — Mar. 2013 - Aug. 2018

PROFESSIONAL SKILLS

[Machine Learning] PyTorch, DeepSpeed, FairScale, Multi-node multi-GPU distributed training, Sparse communication

[Parallel/Distributed/HPC Optimization] CUDA, GPGPU, MPI, Network programming, Multithread programming, Graph processing, Parallel/distributed computing

[Programming] Python, C/C++, Java

[Research] Capability for analyzing the state-of-the-art researches and figuring out the solutions to the problem

[English] Paper and technical report writing, presentation and Q&A

SELECTED PUBLICATIONS

C3. **Daegun Yoon**, Sangyoon Oh, "Preserving Near-Optimal Gradient Sparsification Cost for Scalable Distributed Deep Learning", 24th IEEE/ACM International Symposium on Cluster, Cloud, and Internet Computing (CCGrid), May. 2024.

C2. **Daegun Yoon**, Sangyoon Oh, "MiCRO: Near-Zero Cost Gradient Sparsification for Scaling and Accelerating Distributed DNN Training", 30th IEEE International Conference on High Performance Computing, Data, and Analytics (HiPC), Dec. 2023.

C1. **Daegun Yoon**, Sangyoon Oh, "DEFT: Exploiting Gradient Norm Difference between Model Layers for Scalable Gradient Sparsification", 52nd International Conference on Parallel Processing (ICPP), Aug. 2023.

SELECTED RESEARCH PROJECTS

R3. **Electronics and Telecommunications Research Institute**, "Analog AI Computing". — Jan. 2024 - Oct. 2024

R2. **Samsung Display**, "Development of High Efficiency HPC Job Scheduling Algorithm". — Jan. 2023 - Dec. 2023

R1. **Korea Institute of Science and Technology Information**, "Research on Optimizing Memory Utilization and Communication Scheduling of Sharded Data Parallel for Accelerating Large-Scale Distributed Deep Learning". — Mar. 2022 - Oct. 2022

PROFESSIONAL SERVICES

Reviewer: The Journal of Supercomputing (2023, 2024), Journal of Big Data (2024), Cluster Computing (2024), World Wide Web (2024), Wireless Networks (2024), Journal of Grid Computing (2024), Computing (2024), International Journal of Machine Learning and Cybernetics (2024), Journal of Real-Time Image Processing (2024), ACM Transactions on Multimedia Computing Communications and Applications (2023)

TEACHING EXPERIENCES

Teaching Assistant: "Software Engineering", Department of Software, Ajou University — Spring 2021

Teaching Assistant: "Digital Circuits", Department of Software, Ajou University — Fall 2022

AWARDS

A1. **Excellent Dissertation Award**: "Dynamic Gradient Sparsification Exploiting Aggregated Gradients for Scalable Distributed Deep Learning", Department of Software, Ajou University, Feb. 2024.