

Daegun Yoon

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RESEARCH INTERESTS

On-Device Inference: High-performance on-device AI model inference via model compression and performance optimization
Distributed Training: Scalable distributed machine learning via gradient sparsification
High-Performance Computing: Performance optimization for algorithms and systems via parallel and distributed computing

POSITIONS

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

EDUCATION

Ph.D. in Department of Artificial Intelligence, Ajou University, Republic of Korea Sep. 2018 - Feb. 2024
Advisor: Prof. Sangyoon Oh
B.S. in Department of Software, Ajou University, Republic of Korea Mar. 2013 - Aug. 2018

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.

PATENTS

P3. Sangyoon Oh, Byeong-hee Roh, **Daegun Yoon**, Cheol-woong Lee, Kyungwoo Kim, “METHOD OF IMPROVING PERFORMANCE OF SOFTWARE-DEFINED NETWORKING OF ELECTRONIC DEVICE”, Korea Patent, Feb. 2024.
P2. Sangyoon Oh, **Daegun Yoon**, “APPARATUS AND METHOD FOR ADAPTIVE GRAPH TRAVERSAL BASED ON WORKLOAD ANALYSIS”, Korea Patent, Jun. 2023.
P1. Minho Park, Sangyoon Oh, **Daegun Yoon**, Jaehyun Ham, “METHOD AND APPARATUS FOR PARTITIONING OF EVENT, COMPUTER-READABLE STORAGE MEDIUM AND COMPUTER PROGRAM”, Korea Patent, Jul. 2022.

SELECTED RESEARCH PROJECTS

R3. **Electronics and Telecommunications Research Institute**, “Analog AI Computing”. Jan. 2024 - Present
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)
Reviewer: International Journal of Machine Learning and Cybernetics (2024)
Reviewer: 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.