

Jaeyong Song

Accelerated Intelligent Systems Lab. (AISys) @ Seoul National University

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Research Interest: SYSTEMS & ARCHITECTURES FOR DEEP LEARNING

Distributed Deep Learning, Accelerators, Large Language Models (LLMs), Graph Neural Networks (GNNs)

EDUCATION

- **Seoul National University** Seoul, Korea
• *Ph.D. Student - Electrical & Computer Engineering; Current GPA: 4.3/4.3* *September 2023 -*
- **Yonsei University** Seoul, Korea
• *M.S. - Computer Science; GPA: 4.25/4.3* *September 2021 - August 2023*
- **Yonsei University** Seoul, Korea
• *B.E. - Applied Statistics, B.S. - Computer Science; GPA: 4.17/4.3 (3.96/4.0, Rank: 2/88)* *- August 2021*

PUBLICATIONS

¹: indicates co-first authors.

- **A Case for In-Memory Random Scatter-Gather for Fast Graph Processig**: Changmin Shin¹, Taehee Kwon¹, Jaeyong Song, Jae Hyung Ju, Fank Liu, and Jinho Lee *IEEE CAL*, 2024
- **PeerAiD: Improving Adversarial Distillation from a Specialized Peer Tutor**: Jaewon Jung, Hongsun Jang, Jaeyong Song, and Jinho Lee *CVPR*, 2024
- **AGATHA: Fast and Efficient GPU Acceleration of Guided Sequence Alignment for Long Read Mapping**: Seongyeon Park, Junguk Hong, Jaeyong Song, Hajin Kim, Youngsok Kim, and Jinho Lee *PPoPP*, 2024
- **Pipette: Automatic Fine-grained Large Language Model Training Configurator for Real-World Clusters**: Jinkyu Yim¹, Jaeyong Song¹, Yerim Choi, Jaebeen Lee, Jaewon Jung, Hongsun Jang, and Jinho Lee *DATE*, 2024
- **Smart-Infinity: Fast Large Language Model Training using Near-Storage Processing on a Real System**: Hongsun Jang, Jaeyong Song, Jaewon Jung, Jaeyoung Park, Youngsok Kim, and Jinho Lee *HPCA (Best Paper Award Honorable Mention)*, 2024
- **Fast Adversarial Training with Dynamic Batch-level Attack Control**: Jaewon Jung, Jaeyong Song, Hongsun Jang, Hyeyoon Lee, Kanghyun Choi, Noseong Park, and Jinho Lee *DAC*, 2023
- **Pipe-BD: Pipelined Parallel Blockwise Distillation**: Hongsun Jang, Jaewon Jung, Jaeyong Song, Joonsang Yu, Youngsok Kim, and Jinho Lee *DATE*, 2023
- **Optimus-CC: Efficient Large NLP Model Training with 3D Parallelism Aware Communication Compression**: Jaeyong Song¹, Jinkyu Yim¹, Jaewon Jung, Hongsun Jang, Hyung-Jin Kim, Youngsok Kim, and Jinho Lee *ASPLOS*, 2023
- **SGCN: Exploiting Compressed-Sparse Features in Deep Graph Convolutional Network Accelerators**: Mingi Yoo¹, Jaeyong Song¹, Jounghoo Lee, Namhyung Kim, Youngsok Kim, and Jinho Lee *HPCA*, 2023
- **Slice-and-Forge: Making Better Use of Caches for Graph Convolutional Network Accelerator**: Mingi Yoo¹, Jaeyong Song¹, Hyeyoon Lee, Jounghoo Lee, Namhyung Kim, Youngsok Kim, and Jinho Lee *PACT (Best Paper)*, 2022
- **Making a Better Use of Caches for GCN Accelerators with Feature Slicing and Automatic Tile Morphing**: Mingi Yoo¹, Jaeyong Song¹, Jounghoo Lee, Namhyung Kim, Youngsok Kim, and Jinho Lee *IEEE CAL*, 2021

HONORS AND AWARDS

- **Best Paper Award @ PACT '22** (Slice-and-Forge) - Oct. 2022
- **Best Paper Award Honorable Mention @ HPCA '24** (Smart-Infinity) - Mar. 2024
- Encouragement Prize (Top 6%) @ The 30th Samsung Humantech Paper Award - Feb. 2024
- Excellence Prize @ LG Display AI & Big Data Competition - Dec. 2022
- Yonsei Social Entrepreneurship Award - Database-based learning management system development - Jan. 2020
- Academic (Highest) Honors (Undergraduate, four times) - 2016-1 (honors), 2019-1 (honors), 2019-2 (highest honors), 2021-1 (honors) - GPA: 3.96/4.0 (4.17/4.3, Rank: 2/88)
- Commendation from Jeju Provincial Police Agency - Commendation from the local police commissioner - Oct. 2017

TEACHING EXPERIENCE

- **Digital Systems Design and Lab.** Seoul National University
• *Teaching Assistant* *Fall 2023*
- **Logic Circuit Design** Yonsei University
• *Teaching Assistant* *Fall 2021*