# Jaeyong Song

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

Email: jaeyong.song@snu.ac.kr

Profile: https://aisys.snu.ac.kr/members/JaeyongSong.html
Google scholar: https://scholar.google.com/citations?user=2H-m_VYAAAAJ
LinkedIn: https://www.linkedin.com/in/jyong-song/

## 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. Candidate - Electrical & Computer Engineering; Current GPA: 4.20/4.3*  September 2023 - February 2027

- **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.

- **GriNNder: Breaking the Memory Capacity Wall in Full-Graph GNN Training with Storage Offloading**: Jaeyong Song, Seongyeon Park, Hongsun Jang, Jaewon Jung, Hunseong Lim, Junguk Hong, Jinho Lee  *MLSys*, 2026

- **A Cost-Effective Near-Storage Processing Solution for Offline Inference of Long-Context LLMs**: Hongsun Jang, Jaeyong Song, Changmin Shin, Si Ung Noh, Jaewon Jung, Jisung Park, Jinho Lee  *ASPLOS*, 2026

- **FlexiWalker: Extensible GPU Framework for Efficient Dynamic Random Walks with Runtime Adaptation**: Seongyeon Park, Jaeyong Song, Changmin Shin, Sukjin Kim, Junguk Hong, Jinho Lee  *EuroSys*, 2026

- **FALA: Locality-Aware PIM-Host Cooperation for Graph Processing with Fine-Grained Column Access**: Changmin Shin, Jaeyong Song, Seongmin Na, Jun Sung, Hongsun Jang, Jinho Lee  *MICRO*, 2025

- **Piccolo: Large-Scale Graph Processing with Fine-Grained In-Memory Scatter-Gather**: Changmin Shin, Jaeyong Song, Hongsun Jang, Dogeun Kim, Jun Sung, Taehee Kwon, Jae Hyung Ju, Frank Liu, Yeonkyu Choi, and Jinho Lee  *HPCA*, 2025

- **GraNNDis: Fast Distributed Graph Neural Network Training Framework for Multi-Server Clusters**: Jaeyong Song, Hongsun Jang, Hunseong Lim, Jaewon Jung, Youngsok Kim, and Jinho Lee  *PACT*, 2024

- **A Case for In-Memory Random Scatter-Gather for Fast Graph Processig**: Changmin Shin[1], Taehee Kwon[1], 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 Yim[1], Jaeyong Song[1], 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 Song[1], Jinkyu Yim[1], 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 Yoo[1], Jaeyong Song[1], 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 Yoo[1], Jaeyong Song[1], 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 Yoo[1], Jaeyong Song[1], 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

- **Embedded Systems Design** — Seoul National University
  *Teaching Assistant* — *Fall 2024*

- **Digital Systems Design and Lab.** — Seoul National University
  *Teaching Assistant* — *Fall 2023*

- **Logic Circuit Design** — Yonsei University
  *Teaching Assistant* — *Fall 2021*