Kanghyun Choi

Accelerated Intelligent Systems (AISys) Lab.
Dept. of Electrical and Computer Engineering
Seoul National University, Seoul, Korea (Republic of)
kanghyun.choi@snu.ac.kr
github.com/iamkanghyunchoi

Research Interests

Model Quantization for Training and Inference, Data-free Neural Network Compression, Generative Models

Education

- **Seoul National University** — Seoul, Korea
  Ph.D. Candidate, Electrical and Computer Engineering, GPA 4.15/4.3 — *September 2023 - Present*
- **Yonsei University** — Seoul, Korea
  M.S. in Computer Science, GPA 4.20/4.3 — *September 2020 - August 2023*
- **Yonsei University** — Seoul, Korea
  B.S. in Computer Science, GPA 3.81/4.3 — *March 2016 - August 2020*
- **American University** — Washington D.C., USA
  Study Abroad Program, Computer Science — *January 2019 - May 2019*

Publications

- **(NeurIPS 2025) FALQON: Accelerating LoRA Fine-tuning with FP8 Arithmetic**
  Kanghyun Choi, Hyeyoon Lee, SunJong Park, Dain Kwon, and Jinho Lee
- **(IEEE TCAD) DANCE++: Differentiable Accelerator/Network Co-Exploration with Hard Constraints and Data-Free Training for Real-World Scenarios**
  Kanghyun Choi, Deokki Hong, Hyeyoon Lee, Joonsang Yu, Noseong Park, Youngsok Kim, and Jinho Lee
- **(AAAI 2025) MimiQ: Low-Bit Data-Free Quantization of Vision Transformers with Encouraging Inter-Head Attention Similarity**
  Kanghyun Choi, Hyeyoon Lee, Dain Kwon, SunJong Park, Kyuyeun Kim, Noseong Park, Jonghyun Choi, and Jinho Lee
- **(ICML 2024) DataFreeShield: Defending Adversarial Attacks without Training Data**
  Hyeyoon Lee, **Kanghyun Choi**, Dain Kwon, SunJong Park, Mayoore Selvarasa Jaiswal, Noseong Park, Jonghyun Choi, and Jinho Lee
- **(DAC 2024) Fast Adversarial Training with Dynamic Batch-level Attack Control**
  Jaewon Jung, Jaeyong Song, Hongsun Jang, Hyeyoon Lee, **Kanghyun Choi**, Noseong Park, Jinho Lee
- **(CVPR 2022 Oral) It's All In the Teacher: Zero-Shot Quantization Brought Closer to the Teacher**
  Kanghyun Choi, Hyeyoon Lee, Deokki Hong, Joonsang Yu, Noseong Park, Youngsok Kim, Jinho Lee
- **(DAC 2022) Enabling Hard Constraints in Differentiable Neural Network and Accelerator Co-Exploration**
  Deokki Hong, **Kanghyun Choi**, Hyeyoon Lee, Joonsang Yu, Noseong Park, Youngsok Kim, Jinho Lee
- **(NeurIPS 2021) Qimera: Data-free Quantization with Synthetic Boundary Supporting Samples**
  Kanghyun Choi, Deokki Hong, Noseong Park, Youngsok Kim, Jinho Lee
- **(DAC 2021) DANCE: Differentiable Accelerator/Network Co-Exploration**
  Kanghyun Choi[1], Deokki Hong[1], Hojae Yoon[1], Joonsang Yu, Youngsok Kim, Jinho Lee

Awards

- **AI Model Benchmarking Competition**: October 2025 *3rd Prize, IEEE/ACM MICRO 2025 AI-BMT Workshop*
- **The 28th Samsung Humantech Paper Award**: February 2022 *Silver Prize, Computer Science and Engineering*
- **High Honors at Graduation (Top 3% of class)**: August 2020

Teaching Experience

- **Programming Methodology (430.211)**: Head Teaching Assistant, Spring 2024
- **Digital System Design and Practice (430.315A)**: Teaching Assistant, Fall 2023
- **Multi-core and GPU Programming (CSI4119)**: Teaching Assistant, Spring 2021, 2022
- **Logic Circuit Design (CSI2111)**: Teaching Assistant, Fall 2020

Projects

- **Large Language Model Training with FP8 Arithmetic**
  Model Optimization Program, Google *2024-2025*
- **Data-Free Quantization Framework for Vision Transformers**
  Model Optimization Program, Google *2023-2024*
- **Accelerating Diffusion Models for Landscape Generation**
  Electronics and Telecommunications Research Institute (ETRI) *2023-2024*
- **Semantic Modification Method for High-resolution Face Images**
  Electronics and Telecommunications Research Institute (ETRI) *2022*
- **High-resolution Face Image Generation by Transformer-based GAN**
  Electronics and Telecommunications Research Institute (ETRI) *2021*
- **Fast Distributed Deep Neural Network Training**
  Korea Institute of Industrial Technology (KITECH) *2020*

Academic Services

- **Reviewer**: ICLR, ICML, CVPR, ICCV, ECCV, ACCV, AAAI, IEEE SPL

Skills

- **Python, C, C++, LaTeX**
- **Pytorch, Tensorflow, Pandas, SciPy**
- **Korean** (Native), **English** (Fluent), **Japanese** (Intermediate)