

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. Student, 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

- **Kanghyun Choi**, Deokki Hong, Hyeyoon Lee, Joonsang Yu, Noseong Park, Youngsok Kim, and Jinho Lee, “DANCE++: Differentiable Accelerator/Network Co-Exploration with Hard Constraints and Data-Free Training for Real-World Scenarios”, IEEE TCAD
- **Kanghyun Choi**, Hyeyoon Lee, Dain Kwon, SunJong Park, Kyuyeun Kim, Noseong Park, Jonghyun Choi, and Jinho Lee, “MimiQ: Low-Bit Data-Free Quantization of Vision Transformers with Encouraging Inter-Head Attention Similarity”, AAAI 2025
- Hyeyoon Lee, **Kanghyun Choi**, Dain Kwon, SunJong Park, Mayoore Selvarasa Jaiswal, Noseong Park, Jonghyun Choi, and Jinho Lee, “DataFreeShield: Defending Adversarial Attacks without Training Data”, ICML 2024
- Jaewon Jung, Jaeyong Song, Hongsun Jang, Hyeyoon Lee, **Kanghyun Choi**, Noseong Park, Jinho Lee, “Fast Adversarial Training with Dynamic Batch-level Attack Control”, DAC 2023
- **Kanghyun Choi**, Hyeyoon Lee, Deokki Hong, Joonsang Yu, Noseong Park, Youngsok Kim, Jinho Lee, “It’s All In the Teacher: Zero-Shot Quantization Brought Closer to the Teacher”, CVPR 2022, **Oral presentation**
- Deokki Hong, **Kanghyun Choi**, Hyeyoon Lee, Joonsang Yu, Noseong Park, Youngsok Kim, Jinho Lee, “Enabling Hard Constraints in Differentiable Neural Network and Accelerator Co-Exploration”, DAC 2022
- **Kanghyun Choi**, Deokki Hong, Noseong Park, Youngsok Kim, Jinho Lee, “Qimera: Data-free Quantization with Synthetic Boundary Supporting Samples”, NeurIPS 2021
- **Kanghyun Choi**¹, Deokki Hong¹, Hojae Yoon¹, Joonsang Yu, Youngsok Kim, Jinho Lee, “DANCE: Differentiable Accelerator/Network Co-Exploration”, DAC 2021

PROJECTS

- **Large Language Model Training with FP8 Arithmetic**
Model Optimization Program, Google Korea, Unrestricted Gift *2024-2025*
- **Data-Free Quantization Framework for Vision Transformers**
Model Optimization Program, Google Korea, Unrestricted Gift *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

AWARDS

- **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

ACADEMIC SERVICES

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

SKILLS

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