Kanghyun Choi

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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**, Hyeyoon Lee, SunJong Park, Dain Kwon, and Jinho Lee, " FALQON: Accelerating LoRA Fine-tuning with FP8 Arithmetic", NeurIPS 2025 (To appear)
- **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 Hong[1], Hojae Yoon[1], 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 — *2024-2025*
- **Data-Free Quantization Framework for Vision Transformers**
  Model Optimization Program, Google Korea — *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

- **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

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)