

SEONYOUNG KIM

seonyoungkim55@gmail.com
seonyoungkims.github.io

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST) Sep. 2019 - Feb. 2022
Daejeon, South Korea
M.S. in Computer Science
• Thesis: Generating small anomaly detection models through distillation of long term dependency.

Hongik University Mar. 2015 - Aug. 2019
Seoul, South Korea
B.S.E. in Computer Engineering
• GPA: 4.24/4.50 (Ranked 3rd of 173 students)

RESEARCH EXPERIENCE

SoC Architecture Team | Samsung Research Aug. 2022 - Present
AI Researcher
• Research on Model Compression, Optimization, and HW-SW Co-Design for AI
• Commercial Deployment of AI Models on Neural Processing Unit (NPU)
• NPU Model Validation

Database Lab | KAIST Sep. 2019 - Feb. 2022
Graduate Research Assistance
Advisor: Professor Myoungho Kim
• Knowledge Distillation
• Time-series Anomaly Detection

Research Lab for Distributed Intelligence and Autonomy | Hongik University Nov. 2018 - Aug. 2019
Undergraduate Research Assistant
Advisor: Professor Young Yoon
• Data Analysis
• Distributed system

PUBLICATIONS

Under Review

- **Seonyoung Kim***, Joeun Kim*, Hayoung Yun, Meejeong Park, Sangjeong Lee, Hanjoo Cho, and Heonjae Ha. “Bespoke LUT: Non-Linear Approximation for Integer-only Transformer Inference on NPUs.” *Under review at IEEE Transactions on Emerging Topics in Computing (IEEE TETC)*, 2025.
- Youngcheon Yoo, Banseok Lee, Minseop Choi, **Seonyoung Kim**, Hyochan Chong, Changdong Kim, Youngmin Kim, and Dongkyu Kim. “RaBiT: Residual-Aware Binarization Training for Accurate and Efficient LLMs.” *Under review at International Conference on Learning Representations (ICLR)*, 2025.

Thesis

- **Seonyoung Kim**. “Generating Small Anomaly Detection Models through Distillation of Long-Term Dependency.” *Master’s Thesis*, KAIST, School of Computing, 2022.

Published

- **Seonyoung Kim** and Myoungho Kim. “Knowledge Distillation for Anomaly Detection in Multivariate Time Series Data.” *Korea Computer Congress (KCC)*, 2021.

PATENT

- Youngcheon Yoo, Banseok Lee, Minseop Choi, **Seonyoung Kim**, Hyochan Chong, Changdong Kim, Dongkyu Kim, Youngmin Kim. “Residual-Aware Binarization Training Method.” Patent Pending (KR Patent 10-2025-0133039), 2025.

PROJECTS

1. **Efficient AI Deployment on NPUs | Samsung Research** Aug. 2022 – Present
 - Developing hardware-aware model compression techniques for LLMs, focusing on ultra low-bit quantization and ongoing publications.
2. **Edge Computing–Based Anomaly Detection in Memory Semiconductor Processes | KAIST** Sep. 2020 – Sep. 2021
 - Developed an autoencoder–LSTM model for life prediction of memory semiconductors.
3. **Chemical Mechanical Planarization (CMP) Wafer Defect Detection Project | KAIST** Dec. 2019 – Jun. 2020
 - Developed wafer defect detection using vision models on CMP wafer surface images.
4. **Neouly Security Project | Hongik University** Dec. 2018 – Jun. 2019
 - Developed a malware detection system using DNN, achieving 97.8% accuracy.
5. **AI-based Restaurant Recommendation System | Hongik University** Jan. 2018 – Nov. 2018
 - Built a restaurant recommendation system using Bi-LSTM with Word2Vec.

TALKS AND PRESENTATIONS

- Internal Seminar (Journal Club) | Samsung Research** Feb. 2023 - Present
- Presented 8 papers on model compression and LLMs as part of a rotating paper review seminar.
- Graduate Seminar | KAIST** Jan. 2019 – May. 2021
- Presented 6 talks on recent research papers, advanced methods, and my own thesis work.

HONORS AND SCHOLARSHIP

- Outstanding Teaching Assistant Award | KAIST** Jun. 2020
- Recognized as an Outstanding Teaching Assistant based on top-tier student evaluations.
- The Hongik scholarship | Hongik University** Aug. 2015 - Sep. 2018
- Awarded \$15,900 in total, covering approximately four semesters.
- Korea Open Source Software Developers Hackathon | Korea IT Business Promotion Association** Oct. 2016
- Contributed to the Linux perf open-source project and awarded 2nd place.

TEACHING ASSISTANT

- Database System, Graduate Course | KAIST** Mar. 2021 – Jun. 2021
- System Programming, Undergraduate Course | KAIST** Sep. 2020 – Dec. 2020
- Data Structure, Undergraduate Course | KAIST** Mar. 2020 - Jun. 2020

ACTIVITIES

- Vice President, Graduate Student Association | School of Computing, KAIST** Mar. 2020 – Feb. 2021