Junsu Kim

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Research Interests

Memory and Storage Systems, Machine Learning, Computer Architecture

Education

Hanyang University, Seoul, Korea Mar. 2014 - Feb. 2021
B.S. in Electronic Engineering
Overall GPA: 3.79/4.0
Hanyang University Scholarship - Full Scholarship (7 Semesters) Mar. 2014 - Sep. 2016, Mar. 2019

Research & Project Experience

ML based Rowhammer attack detection system Aug. 2020 - Current
Conducting in ESOC at Hanyang University

- Developing ML based rowhammer attack detection system
- Contribution: Suggesting a new approach to prevent rowhammer bitflips using ML based system with a lower hardware cost
- Publication: Target to DAC'2021

Implemetation of Retention time Aware Intelligent DRAM Refresh in DDR4 Jul. 2020 - Jul. 2020
Personal Project

- Applied different refresh rate for strong DRAM cells in DDR4(idea from RAIDR, ISCA'2012)
- Modified DRAMSim2, created DDR4 configuration files and used Gem5 for evaluation with SPEC CPU2006 benchmarks
- Contribution: Came up with the exact performance improvement of RAIDR scheme over auto-refresh scheme in DDR4

Accelerating Deep Learning Workloads Using Compiler Jan. 2020 - May. 2020
Conducted in CASS Lab at Hanyang University

- Designed a system automatically generates optimal computation graphs for inference on CPU
- Observed TASO's lower performance when it generates computation graphs for other architectures
- Contribution: Observed the performance of TASO(SOSP'2019) on CPU and Geforce RTX 2080 Ti

CAPTCHA Project: Building a Machine Reads Distorted Text May. 2019 - Jun. 2019
Class Project at Hanyang University

- Built a system that can read distorted text
- Pre-processed and applied data augmentation to the training data with computer vision skills, built the system using transfer learning approach
- Contribution: Achieved the highest score at the class kaggle competition with only 1000 training samples (dataset from Wilhelmy, Rodrigo Rosas, Horacio)

Technical Skills

- Programming Languages: `C, C++, Python, Verilog, ARM Assembly, Shell Script`
- Frameworks: `Tensorflow, Pytorch`
- Simulators: `DRAMSim2, Gem5`

Volunteer Work & Leadership

President of Travel Club Jun. 2018 - Dec. 2018

- Managed club budget and recruited new members
- hosted events and parties for communication in the club

Teacher of Special Education School (Alternative Military Service) Mar. 2017 - Dec. 2018

- Worked for blind students as an assistant teacher
- Assisted teaching Science, English, Art, Athletic and Music

Volunteer in Science Museum, Gwacheon, Korea Dec. 2014 - Feb. 2015

- Explained exhibits in the museum and took care of children

(Compilation date: September 30, 2020)