

YohanKo

Technical Leader at SK hynix

CONTACT

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PROGRAMMING

C/C++, Perl, Java,
UNIX Shell Script, &
Python

PLATFORM

In-house SSD
validation tool,
Windows XP/7/8/10,
Linux, Android, &
cycle-accurate
simulators (gem5 and
SimpleScalar LLC)

DEBUGGER

TRACE32 (Hardware
debugger for
embedded systems
such as ARM
architecture)

TOOLS

LaTeX, MS Office

LANGUAGES

Korean (native)
English (academically
fluent)
Japanese
(intermediate)

EXPERIENCE

Feb 2018–Now

SK hynix

Seongnam, Korea

Technical Leader

Implementing HIL (Host Interface Layer) firmware on SATA-based enterprise SSDs (SE5031)

Implementing FTL (Flash Translation Layer) firmware on NVMe-based enterprise SSDs

Implementing the debugging module such as behavior recorder for enterprise SSDs on customer site

Implementing block management module for enterprise SSDs

Analyzing the reliability of NAND semiconductor for enterprise SSD

Mar 2019–May 2019

SKHMS-A (SK hynix Memory Solutions America)

CA, USA

Technical Leader

Involve the committee of a common platform of enterprise SSDs between US branch and Korean headquarter for high productivity and readability

Mar 2012–Feb 2018

Yonsei University

Seoul, Korea

Research Assistant

Improving the reliability of embedded systems against soft errors

Implementing vulnerability estimation tool based on simulator

Implementing context-awareness on smart devices by using artificial intelligence

Jun 2012–Aug 2017

Arizona State University

AZ, USA

Visiting Student

Implementing the vulnerability estimation toolset based on system simulator during total 9 months (Jun 2017–Aug 2017, Feb 2016–Mar 2016, Dec 2014–Mar 2015, Jan 2013–Feb 2013, Jun 2012–Aug 2012)

Jun 2012–Jul 2017

Yonsei University

Seoul, Korea

Teaching Assistant

Spring 2017: Assistant to “Start-Up 105: Mentor Seminar (CSI2130)”

Fall 2013, Spring 2013, Fall 2012, Spring 2012: Assistant to “Software Capstone Design (CHI4102)”

Sept 2015–Dec 2016

Yonsei University

Seoul, Korea

Lecturer

Fall 2016, Fall 2015: Teaching “Introduction to Computers (UCH1114)” - Introduction class for non-major students

Summer 2016, Winter 2015: Teaching “Computer 1 (SCI2001)” - C Language class for engineering students

Apr 2016–May 2016

The Boston Consulting Group

Seoul, Korea

Research Analyst

Analyzing a semiconductor company and assisting the strategy establishment of the semiconductor company

Jun 2015–Jul 2015

SK hynix

Seongnam, Korea

Summer Intern

Debugging and validating hardware-based AES encryption on eMMC memory by TRACE32 debugger

EDUCATION

Mar 2012–Feb 2018 **Ph.D.** in Computer Science (GPA: 4.18/4.3)
Advisor: Prof. Kyoungwoo Lee

Yonsei University, Seoul, Korea

Mar 2006–Feb 2012 **Bachelor** in Computer Science (GPA: 3.32/4.3)

Yonsei University, Seoul, Korea

PUBLICATIONS

International Peer-Reviewed Conferences/ Workshops

EXPERT: Effective and flexible error protection by redundant multithreading

Hwisoo So, Moslem Didehban, Yohan Ko, Aviral Shrivastava, Kyoungwoo Lee
Design, Automation, and Test in Europe (DATE), 2018

Comprehensive reliability evaluation for dependable embedded systems

Yohan Ko
SIGDA PhD Forum at Design Automation Conference (DAC), 2017

Enhanced indoor localization in home environments using appearance frequency information

Jonghoon Shin, Hyunchoong Kim, Dayoung Lee, Yohan Ko, Kyoungwoo Lee, Seong-il Hahm, Tae-Jun Kwon
IEEE International Conference on Systems, Man, and Cybernetics (SMC), 2017

Collaborative classification for daily activity recognition with a smartwatch

Hyunchoong Kim, Jonghoon Shin, Soohwan Kim, Yohan Ko, Kyoungwoo Lee, Hojung Cha, Seong-il Hahm, TaeJun Kwon
IEEE International Conference on Systems, Man, and Cybernetics (SMC), 2016

Multi-level cache vulnerability estimation: The first step to protect memory

Yohan Ko, Kyoungwoo Lee
IEEE International Conference on Systems, Man, and Cybernetics (SMC), 2016

gemV: A validated toolset for the early exploration of system reliability

Karthik Tanikella, Yohan Ko, Reiley Jeyapaul, Kyoungwoo Lee, Aviral Shrivastava
IEEE Application-Specific Systems, Architectures and Processors (ASAP), 2016

Accurate cache vulnerability modeling in presence of protection techniques

Yohan Ko, Reiley Jeyapaul, Youngbin Kim, Kyoungwoo Lee, Aviral Shrivastava
ESWEEK Workshop on Resiliency in Embedded Electronic Systems (REES), 2015

Guidelines to design parity protected write-back L1 data cache

Yohan Ko, Reiley Jeyapaul, Youngbin Kim, Kyoungwoo Lee, Aviral Shrivastava
Design Automation Conference (DAC), 2015

Software-based selective voting for dependable coarse-grained reconfigurable architectures against soft errors

Yohan Ko, Kyoungwoo Lee
ESWEEK Workshop on Compiler Assisted SoC Assembly (CASA), 2014

Selective validations for efficient protections on coarse-grained reconfigurable architectures

Jihoon Kang, Yohan Ko, Jongwon Lee, Yongjoo Kim, Hwisoo So, Kyoungwoo Lee, Yunheung Paek
IEEE Application-Specific Systems, Architectures and Processors (ASAP), 2013

Robust register files by exploiting asymmetric soft error rate

Yohan Ko, Kyoungwoo Lee
Workshop on Synthesis And System Integration of Mixed Information technologies (SASIMI), 2012

Compiler-assisted soft error correction by duplicating instructions for VLIW architecture

Yunrong Li, Jongwon Lee, Yohan Ko, Kyoungwoo Lee, Yunheung Paek
Workshop on Synthesis And System Integration of Mixed Information technologies (SASIMI), 2012

International Peer-Reviewed Journals

Protecting caches from soft errors: A microarchitect's perspective

Yohan Ko, Reiley Jeyapaul, Youngbin Kim, Kyoungwoo Lee, Aviral Shrivastava

ACM Transactions on Embedded Computing Systems (TECS) 16.4 (May 2017) 93:1–93:28. ACM, 2017

Software-based selective validation techniques for robust CGRAs against soft errors

Yohan Ko, Jihoon Kang, Jongwon Lee, Yongjoo Kim, Joonhyun Kim, Hwisoo So, Kyoungwoo Lee, Yunheung Paek

ACM Transactions on Embedded Computing Systems (TECS) 15.1 (Jan. 2016) 20:1–20:26. ACM, 2016

Dynamic code duplication with vulnerability awareness for soft error detection on VLIW architectures

Jongwon Lee, Yohan Ko, Kyoungwoo Lee, Jonghee M. Youn, Yunheung Paek

ACM Transactions on Architecture and Code Optimization (TACO) 9.4 (Jan. 2013) 48:1–48:24. ACM, 2013

Domestic Peer-Reviewed Conferences/Workshops

The effect of display brightness, font size, and background color on readability of smart-phones

Yohan Ko, Kyoungwoo Lee

KIISE Winter Conference, 2014

Selective voting mechanism for low-cost protections on coarse-grained reconfigurable architectures

Yohan Ko, Jihoon Kang, Jongwon Lee, Yongjoo Kim, Hwisoo So, Kyoungwoo Lee, Yunheung Paek

Korea Computer Congress (KCC), 2013

Accurate cache vulnerability estimation based on word-level behaviors

Yohan Ko, Youngbin Kim, Kyoungwoo Lee

Korea Computer Congress (KCC), 2012

Robust register files against soft errors by exploiting asymmetric soft error rates

Yohan Ko, Kyoungwoo Lee

KIISE Fall Conference, 2011

Domestic Peer-Reviewed Journals

Software reliability for automotive embedded system

Yohan Ko, Kyoungwoo Lee

Korea Information Processing Society Review 21.4 (2014) pp. 36–47. KIPS, 2014

COMMUNICATION SKILLS

Mar 2013

Workshop Presentation

Hong Kong University of Science and Technology

Selective validations for efficient protections on CGRA architecture

CERTIFICATE

Nov 2011

Engineer Information Processing

Human Resources Development Service of Korea

PROJECTS

2015–2017	A study on dependable future processor systems Foundation	National Research
2015–2017	Collaborative activity recognition with IoT devices	Samsung Electronics
2012–2015	A study on dependable mobile embedded systems Foundation	National Research
2012–2013	Robust software framework for unreliable hardware	LG Electronics

SCIENTIFIC SERVICES

Apr 2017–Jul 2017	Assistant to program co-chair of International Workshop on Cross-layer Resiliency (IWCR)	
Apr 2016–Nov 2016	Assistant to Research and Education course (Topic: Developing user context recognition application based on artificial intelligence) Science High School	Hansung
Mar 2015–Oct 2016	Assistant to web co-chair of Embedded Systems Week (ESWEEK)	ACM

AWARDS/SCHOLARSHIP

Dec 2016	Bronze Best Paper Award Awarded in IEEE Student Paper Contest (Seoul Section)	IEEE
Jun 2016	PhD Fellowship Award Awarded to the top Ph.D. student in embedded system area	NAVER
Jun 2016	Research Scholarship Awarded to students who produce research outcomes	Yonsei University
Jul 2015	Summer Intern Final Project Presentation First Prize Winner Awarded to the top presenter (3 keywords in semiconductor company)	SK hynix
Jul 2014	Superior Presentation Winner Awarded to the top presenter in Korea Computer Congress 2014	KIISE
May 2014	CO-OP GOODS Scholarship Awarded to the graduate student to support tuition	Yonsei University
Jul 2013	Superior Presentation Winner Awarded to the top presenter in Korea Computer Congress 2013	KIISE
Jun 2012	Research Expense Funding Program Supported to the individual academic funding	Yonsei University
Feb 2012	Excellence Award Awarded to the student with the highest GPA in 2011 fall semester (3.88/4.3)	Yonsei University
Dec 2011	Superior Presentation Winner Awarded to the top presenter in KIISE Fall Conference 2011	KIISE
Aug 2006–Aug 2011	Freedom Scholarship Awarded to the student with high GPA (Fall 2011, Spring 2011, Fall 2008, Spring 2008, Fall 2007, Spring 2007, Fall 2006)	Yonsei University