
RESEARCH INTERESTS

Computer Architecture, Cloud Computing, Distributed Systems, Heterogeneous Computing, Non-Volatile Memory Systems, Serverless Computing

EDUCATION

- **Korea Advanced Institute of Science and Technology (KAIST)** Daejeon, Republic of Korea
Master of Science in Computer Science (GPA: 3.98 / 4.30) Mar 2016 – Feb 2018
Advisor: Dr. Jaehyuk Huh
Thesis: Secure I/O Architecture for Isolated Heterogeneous Computing with Hardware Assisted Trusted Execution Environment
- **Sungkyunkwan University (SKKU)** Seoul, Republic of Korea
Bachelor of Science in Computer Engineering (GPA: 4.24 / 4.50) Mar 2011 – Feb 2016

PUBLICATIONS

1. **Insu Jang**, Adrian Tang, Taehoon Kim, Simha Sethumadhavan, and Jaehyuk Huh. 2019. “**Heterogeneous Isolated Execution for Commodity GPUs.**” *International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '19)*, April 2019.

RESEARCH EXPERIENCE

- **Computer Architecture and Systems Lab, KAIST** Daejeon, Republic of Korea
Research Assistant (Advisor: Dr. Youngjin Kwon) Jan 2020 – Jul 2020
 - **Infiniband RDMA**: Worked on studying RDMA and reproducing Hyperloop, an Infiniband RDMA framework that optimizes replicated transactions published in SIGCOMM'18.
- **Computer Architecture and Systems Lab, KAIST** Daejeon, Republic of Korea
Graduate Research Assistant (Advisor: Dr. Jaehyuk Huh) Mar 2016 – Feb 2018
 - **Trusted Heterogeneous Execution Environment**: Worked on extending the protection of Intel SGX to heterogeneous devices connected to the system via PCIe architecture.
 - **Accelerating Machine Learning**: Worked on studying hardware architecture for machine learning.
- **Networking Lab, Sungkyunkwan University** Suwon, Republic of Korea
Undergraduate Research Assistant (Advisor: Dr. Hyunseung Choo) May 2014 – Jul 2015
 - **Inaudible Sound Communication System**: Worked on implementing a data transmission system with inaudible sound over 20kHz frequency using commodity Android smartphones.
- **M2M Lab, Purdue University (Purdue/NIPA Capstone Program)** West Lafayette, IN, USA
Undergraduate Research Assistant (Advisor: Dr. Eric T. Matson) Jul 2014 – Aug 2014
 - **Cooperative Fire Security System using HARMS**: Worked on implementing Human Agent Robot Machine Sensor (HARMS) message protocol for robot-based firefighting system.

PATENTS

1. **Insu Jang**, Taehoon Kim, and Jaehyuk Huh. “**Heterogeneous Isolated Execution for Commodity GPUs.**” *Republic of Korea Patent No. 10-2105760*. Filed June 19, 2018, Issued December 30, 2019.
2. **Insu Jang**, Songhee Ryu, Gyuhyeon Jeon, Hyun Lee, Myoungbeom Chung, and Hyeonseung Choo. “**Data Communication Method using Inaudible Frequency Band.**” *Republic of Korea Patent No. 10-1560798*. Filed February 23, 2015, Issued October 16, 2015.

WORK EXPERIENCE

- **TmaxA&C** Seongnam, Republic of Korea
System Software Engineer Feb 2018 – Present
 - **Kubernetes:** Worked on implementing a container management system based on Kubernetes.
 - **Linux:** Worked on implementing system services using Linux low-level features, e.g. udev, netlink.
 - **Ceph:** Worked on analyzing Ceph distributed storage system.
- **KAIST** Daejeon, Republic of Korea
Teaching Assistant (CS230 System Programming) Mar 2017 – Aug 2017
- **Electronics and Telecommunications Research Institute (ETRI)** Daejeon, Republic of Korea
Research Intern Jan 2016 – Feb 2016
 - **Hypervisor:** Worked on studying internal architecture of Xen hypervisor.
 - **Software Development Process:** Worked on studying Test Driven Development (TDD) process for reliable software development.
- **Advanced Institute of Convergence Technology (AICT)** Suwon, Republic of Korea
Research Intern Jul 2015 – Aug 2015
 - **Apache Hadoop and Apache Spark:** Worked on studying distributed computing frameworks and internal architecture of Apache Hadoop and Apache Spark.
- **Samsung Software Membership (Student Program of Samsung Electronics)** Suwon, Republic of Korea
Student Member Jan 2013 – Apr 2014
 - **Android:** Worked on implementing several Android applications.
 - **HTML5 and Javascript:** Worked on implementing several HTML5 based web applications.
 - Led several projects as a team leader.

HONORS AND AWARDS

- **Korea National Scholarship** Mar 2016 – Feb 2018
KAIST and Korea Ministry of Science and ICT
- **Korea National Scholarship for Science and Engineering** Mar 2014 – Feb 2016
Korea Student Aid Foundation and Korea Ministry of Education
- **2nd Prize, 2015 Convergence App Contest** Dec 2015
College of Software, Sungkyunkwan University
- **Dean's List** Oct 2014, Apr 2015
Department of Computer Engineering, Sungkyunkwan University
- **1st Prize, 2013 Smart TV App and Peripherals Contest** Nov 2013
Korea Association of Smart Home and Korea Ministry of Trade, Industry and Energy
- **1st Prize, 2013 Mobile E-learning App Idea Contest** Sep 2013
Korea Ministry of Education

TECHNICAL SKILLS

- **Languages:** C, C++14, Python, Go, Markdown, \LaTeX
- **Frameworks:** CUDA, Intel SGX, Kubernetes, RDMA, Android, Linux, QEMU, KVM

REFERENCES

- **Jaehyuk Huh:** Professor, School of Computing, KAIST, jhhuh@kaist.ac.kr
- **Youngjin Kwon:** Assistant Professor, School of Computing, KAIST, yjkwon@kaist.ac.kr