

Hokeun Kim

Google LLC, Mountain View / Sunnyvale, CA, United States
<https://hokeun.github.io/>

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- EDUCATION** **University of California, Berkeley**, CA, United States
- Ph.D. in Electrical Engineering and Computer Sciences Aug 2012 – Aug 2017
- Seoul National University**, Republic of Korea
- M.S. in Electrical Engineering and Computer Science Mar 2010 – Feb 2012
 - B.S. in Computer Science and Engineering Mar 2003 – Feb 2010
- AREAS OF INTEREST** Internet of Things (IoT), Internet/network security, Edge computing, Real-time embedded systems, Computer architecture, Cyber-physical systems
- SKILLS** **Programming Languages and Tools** (Advanced || Experienced)
 Java, C/C++, C#, JavaScript (Adv.) || Python, Verilog, NI LabView, SQL, MATLAB, Scala (Exp.)
- Developing Environments and Platforms**
 OS X, Linux (Ubuntu and RedHat), Windows, Android OS, and TinyOS
- SOFTWARE PROJECTS**
- SST: Secure Swarm Toolkit** – <https://github.com/iotaauth> Aug 2016 – Present
- An open-source software toolkit for authentication/authorization of the Internet of Things (IoT)
- The Ptolemy Project** – <http://ptolemy.org> Nov 2014 – Aug 2017
- **Cape Code** – A graphical environment for developing swarmlets (IoT applications)
- ACADEMIC EXPERIENCE** **University of California, Berkeley**, CA, United States
- **Graduate Student Researcher (GSR)**, Ptolemy Project Team **Aug 2012 – Aug 2017**
 - *TerraSwarm Research Center* (<https://www.terraswarm.org/>) Feb 2014 – Aug 2017
 - Made major contributions to security and real-time aspects of a follow-up NSF project proposal for CPS small.
 - Carried out research on a scalable authorization infrastructure for the security of the IoT as a leading grad student.
 - Developed an open-source local authorization entity for the IoT (Java, available on <https://github.com/iotaauth>).
 - Designed software components, *accessors* (<http://accessors.org>), to help developers of secure IoT applications.
 - *Precision Timed (PRET) Machines* (<https://chess.eecs.berkeley.edu/pret/>) Jan 2013 – May 2015
 - Designed (Verilog) and evaluated (C/C++) a time-predictable memory controller for mixed-criticality systems.
 - Conducted research on time-predictable infrastructure from computer architecture to programming language.
 - *Industrial Cyber-Physical Systems (iCyPhy)*, (<https://www.icyphy.org/>) Aug 2012 – Jun 2013
 - Conducted study of a tool integration (Java) for architectural exploration of aircraft electric power systems (EPS).
 - Developed an Android application (Java) for semantic localization by sensing ultrasound signals.
- INDUSTRY EXPERIENCE** **Google LLC**, Mountain View / Sunnyvale, CA, United States
- **Senior Software Engineer**, Safe Browsing, Security & Privacy **Sep 2018 – Present**
 - *Research on Internet security, data analysis and machine learning for defending phishing attacks*
 - Working on the Safe Browsing team (<https://safebrowsing.google.com/>) protecting more than 4 billion devices from harmful contents on the Internet.
 - Researching on detecting and preventing phishing attacks using data features extracted from host/domain information, network responses, and message feeds.
 - Designing and developing feature extraction and machine learning infrastructure for defense against phishing and social engineering attacks.

LinkedIn Corp., Sunnyvale, CA, United States

- **Software Engineer**, Trust Engineering Group **Sep 2017 – Sep 2018**
 - *Security infrastructure, big data analysis for cyber attack detection and anti-abuse incident response*
 - Undertook analysis of signals for abusive activity on LinkedIn and developed defense system infrastructure.
 - Monitored daily traffic on LinkedIn and responded to anomalies and potential attacks.

HP Labs, Palo Alto, CA, United States

- **Research Associate**, Print Adjacencies and 3D Lab (Pa3DL) **May 2015 – Dec 2016**
 - *Control and simulation of HP's MultiJet Fusion 3D Printing Technology*
 - Carried out cyber-physical system modeling for HP's Multi Jet Fusion 3D printing technology.
 - Designed and implemented a process-level 3D printer simulator using a tool, Ptolemy II. (<http://ptolemy.org>)

ESTsoft Corp., Seoul, Republic of Korea

- **Software Engineer**, Search Service Team **Feb 2008 – Aug 2009**
 - *Search Engine Project for Zum.com*
 - Designed and developed efficient file database (C++) to optimize response and refresh time of a search engine.
 - Implemented administrative tools (C#) and scripts (Python) for managing search engine file database.

**TEACHING
EXPERIENCE****University of California, Berkeley**, CA, United States

- **Guest Lecturer**, Dept. of EECS **Nov 2017**
 - *CS 294-144: Embedded Networked Systems for Internet of Things*
 - Gave a guest lecture on "Authentication and Authorization of the IoT: Issues, Challenges, and Architecture".
- **Graduate Student Instructor (GSI)**, Dept. of EECS **Summer 2014 & Fall 2013**
 - *CS 61C: Great Ideas in Computer Architecture (Machine Structures)* Summer 2014
 - Led discussion sessions and lab sessions, teaching fundamental materials regarding computer architecture.
 - *EECS 149/249A: Introduction to Embedded Systems (Outstanding GSI Award)* Fall 2013
 - Taught lab sessions and mentored students' final projects for embedded systems.
 - Made major contributions to the design of lab classes including manuals and lab exercises, and exams.

**SELECTED
AWARDS**

- **Honorable Mention** Jun 2017
In the IEEE Micro Top Picks from the 2016 Computer Architecture Conferences
- **Best Paper Award** Apr 2017
In the 2nd ACM/IEEE Intl. Conf. on Internet-of-Things Design and Implementation (IoTDI) 2017
- **Outstanding Graduate Student Instructor (GSI) Award** May 2014
The Graduate Division and Graduate Council Advisory Committee, University of California, Berkeley

**SELECTED
PUBLICATIONS**

1. H. Kim, E. Kang, D. Broman, and E. A. Lee, "Resilient Authentication and Authorization for the Internet of Things (IoT) Using Edge Computing," *ACM Transactions on Internet of Things*, vol. 1, no. 1, pp. 4:1–4:27, Mar. 2020.
2. H. Kim and E. A. Lee, "Authentication and Authorization for the Internet of Things," *IT Professional*, vol. 19, no. 5, pp. 27–33, Oct. 2017.
3. H. Kim, E. Kang, E. A. Lee, and D. Broman, "A Toolkit for Construction of Authorization Service Infrastructure for the Internet of Things," in *Proceedings of the 2nd ACM/IEEE International Conference on Internet-of-Things Design and Implementation (IoTDI)*. Pittsburgh, PA, Apr. 2017, pp. 147–158. **Best Paper Award**
4. H. Kim, D. Broman, E. A. Lee, M. Zimmer, A. Shrivastava, and J. Oh, "A predictable and command-level priority-based DRAM controller for mixed-criticality systems," in *Proceedings of the 21st IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS)*, Seattle, WA, Apr. 2015, pp. 317–326.

PATENTS

1. Y. Zhao, H. Kim, L. Zhao, and J. Zeng, "Three-dimensional (3D) Object Printing Simulator", United States Patent and Trademark Office (USPTO), Published in Sep 2018 (Publication No.: US20180275636A1)
2. S. Ha, H. Kim, and B. Lee, "Position Tracking System and Apparatus Using Signal Strength of Wireless Signal", Korean Intellectual Property Office, Registered in Aug 2012 (Registration No.: 10-1176141)

[Last updated on May 4, 2021]