

Dongha Kim

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Education

Ph.D. Student, Computer Science | Arizona State University, Tempe, AZ Aug. 2023 – Present

- Advised by [Prof. Hokeun Kim](#)
- Research Area: System Level Security, Embedded Systems, Cyber-Physical Systems, Large Language Models

Ph.D. Student, Electronic Engineering | Hanyang University, Seoul Mar. 2022 – Jul. 2023

- Advised by [Prof. Hokeun Kim](#)
- Transferred to ASU in July 2023.

B.E., Electronic Engineering | Hanyang University, Seoul Mar. 2016 – Feb. 2022

- Cumulative GPA: 3.86/4.5, 3.49/4.0
- Military Service in the Republic of Korea as Auxiliary Police: Dec 2018 ~ July 2020

Awards

- IEEE Industrial Electronics Society (IES) Students and Young Professionals Paper Assistance Program (IES-SYPA), Travel Award \$1,500 for ICIT 2026 (Mar. 2026)
- **Winner (1st place)** of ESWEEK 2025 Embedded System Software Competition (ESSC) - Carlos Beltran Quinonez, **Dongha Kim**, Hokeun Kim, “*SST Testbed: An Extensible Platform for Experimenting Attacks and Defenses for Networked Embedded Systems*” (Sep. 2025)
- ASU Graduate College Travel Award \$300 (Sep. 2025)
- ASU School of Computing and Augmented Intelligence (SCAI) conference funding \$250 (Aug. 2025)
- ASU Graduate Student Government (GSG) Travel Grant \$950 (Jun. 2025)
- University Graduate Fellowship (UGF) \$4594 from ASU School of Computing and Augmented Intelligence (SCAI) (Spring, 2025)
- National Science Foundation (NSF) EAI SmartSP 2024 Student Travel Grants \$1000 (Nov. 2024)
- ASU School of Computing and Augmented Intelligence (SCAI) conference funding \$250 (Nov. 2024)
- Academic Achievement Award from Hanyang University (Feb. 2022)
- Full Tuition Scholarships from Hanyang University for 3 semesters (Spring, Fall 2016, Spring 2017)

Publications

Journal Articles

- **Dongha Kim** and Hokeun Kim, “*Deterministic Modeling and Simulation of Fault-Tolerant Real-Time Software*”, IEEE Embedded Systems Letters (Early Access), August 2025. Time-Centric Reactive Software (TCRS) Workshop at ESWEEK 2025, Taipei, Taiwan, October 2, 2025.
- Wonseo Choi, **Dongha Kim**, Sangmo Sung, Dohyung Han, Haeun Jo, Dongwook Choi, Jae-Il Jung, and Hokeun Kim, “*Enhanced Wi-Fi Access Point Positioning using Hexagonal CNN with Mobile Data and Urban Information*” IEEE Internet of Things Journal, Volume: 11, Issue: 20, pp. 33820-33832, October 2024.
- **Dongha Kim**, Yeongbin Jo, Taekyung Kim, and Hokeun Kim, “*SST v1.0.0 with C API: Pluggable security solution for the Internet of Things*”, SoftwareX, vol. 22, p. 101390, May 2023.

Conference Papers

- Viraj Thakkar, **Dongha Kim**, Hokeun Kim, and Zhichao Cao, “*ANCHOR: A Vision for Secure Persistent Key-Value Stores in Disaggregated Data Centers*”, (to appear) in Proceedings of the ACM SIGMOD Workshop on Secure and Private Data Management (SeQuereDB) 2026. Bengaluru, India, May 31, 2026.
- Carlos Beltran Quinonez*, **Dongha Kim***, and Hokeun Kim, “*SST Testbed: An Experimental Platform of Attacks and Defenses for Networked Embedded Systems*”, in Proceedings of the IEEE International

Conference on Industrial Technology (ICIT). Monterrey, Mexico, March 4–6, 2026. (* Equally contributed lead authors.) (IES SYPA Travel Award \$1500)

- Viraj Thakkar*, **Dongha Kim***, Yingchun Lai, Hokeun Kim, and Zhichao Cao, "*SHIELD: Encrypting Persistent Data of LSM-KVS from Monolithic to Disaggregated Storage*", in Proceedings of ACM Conference on Management of Data (SIGMOD). Berlin, Germany, June 22 - 27, 2025. (* Equally contributed lead authors.)
- Deeksha Prahlad, Chanhee Lee, **Dongha Kim**, and Hokeun Kim, "*Personalizing Large Language Models using Retrieval Augmented Generation and Knowledge Graph*", in Companion Proceedings of the ACM Web Conference (WWW). Sydney, NSW, Australia, April 28 - May 2, 2025.
- **Dongha Kim**, Chanhee Lee, and Hokeun Kim, "*A Case Study of API Design for Interoperability and Security of the Internet of Things*" Proceedings of the 2nd EAI International Conference on Security and Privacy in Cyber-Physical Systems and Smart Vehicles (SmartSP). New Orleans, LA, November 7 - 8, 2024. (**NSF Travel Award**)
- Chanhee Lee, Deeksha Prahlad, **Dongha Kim**, and Hokeun Kim, "*Work-in-Progress: On-device Retrieval Augmented Generation with Knowledge Graphs for Personalized Large Language Models*", in Proceedings of the ACM SIGBED International Conference on Embedded Software (EMSOFT). Raleigh, NC, September 29 - October 4, 2024.
- **Dongha Kim** and Hokeun Kim, "*Poster Abstract: Securing Edge-Based Real-Time IoT Systems*", in Proceedings of the 21st ACM Conference on Embedded Networked Sensor Systems (SenSys '23), Istanbul, Turkiye, November 15, 2023.
- Byeong-Gil Jun, **Dongha Kim**, Marten Lohstroh, and Hokeun Kim, "*Reliable Event Detection Using Time-Synchronized IoT Platforms*", in Proceedings of Cyber-Physical Systems and Internet of Things Week 2023 (CPS-IoT Week '23), Time-Centric Reactive Software (TCRS), San Antonio, TX, May 9, 2023.
- Yunsang Cho, **Dongha Kim**, and Hokeun Kim, "*Performance Analysis of Federated Learning Using Flower Framework*" Summer Annual Conference of The Institute of Electronics and Information Engineers (IEIE), Jeju, Korea, June 28-30, 2023.
- Youri Su, Sanghun Lee, Eunji Song, **Dongha Kim**, Jaeduk Han, and Hokeun Kim, "*Energy-Efficient Bus Encoding Techniques for Next-Generation PAM-4 DRAM Interfaces*", in Proceedings of the 40th IEEE International Conference on Computer Design (ICCD 2022), Lake Tahoe, CA, October 24-26, 2022.

Competitions

- ESWEEK 2025 Embedded System Software Competition (ESSC), **1st place** - Carlos Beltran Quinonez, **Dongha Kim**, Hokeun Kim, "*SST Testbed: An Extensible Platform for Experimenting Attacks and Defenses for Networked Embedded Systems*"

Teaching Experience

- Arizona State University
 - o 2024 Fall & 2025 Fall*: Teaching Assistant (TA) for CSE522 Real-Time Embedded Systems
 - Create HW and Exam problems with solutions, including grading.
 - Hold office hours and assist students with programming assignments.
 - *Lead flipped learning sessions to review core concepts, homework, and hands-on lab assignments.
- Hanyang University
 - o 2023 Spring: Lab instructor of Embedded Systems
 - Lead 2-hour lab section per week with exercises on Lingua-Franca framework.
 - Developed lab materials tailored to Hanyang University students Dept. of EE.

Academic Services

Secondary Reviewer

- Design, Automation and Test in Europe Conference and Exhibition (DATE 2023, 2024, 2026)
- Design Automation Conference (DAC 2024, 2025, 2026)
- Asia and South Pacific Design Automation Conference (ASP-DAC 2026)
- ACM SIGBED International Conference on Embedded Software (EMSOFT 2023-2024)

Software Projects

Implementing Secure LSM-Based Key-Value Stores (RocksDB) Jan. 2024 - Present

- Implementing a security module for RocksDB using Secure Swarm Toolkit (SST), ensuring data confidentiality, and data encryption key (DEK) rotation.
- Accepted in SIGMOD 25.

Integrating Network Security to Event Detection Using Lingua Franca Jan. 2023 - Present

- Creating a network module for Lingua Franca, supporting interoperability for network protocols such as MQTT, TCP, and integrating the security framework Secure Swarm Toolkit (SST).
- Published in SmartSP 2024.
- Compared deterministic event ordering between AWS IoT Core and Lingua Franca for reliable event detection in time-sensitive IoT applications.
- Published in TCRS 2023.

Implementing C API of Secure Swarm Toolkit for Embedded Systems Mar. 2022 - Present

- Implemented a C API of Secure Swarm Toolkit (SST) for real time software which needs security connections. Currently maintaining and updating.
- Published in SoftwareX 2023.

Detecting Electric Kickboard Driver's Safety on Jetson Nano Aug. 2021 - Dec. 2021

- Designed and implemented a Linux based Jetson Nano embedded system application for detecting electric kickboard safety by checking the driver's helmet and whether multiple people are riding.
- Optimized model through fine-tuning, model selection, and TensorRT to enable object detection close to real time of 20 FPS in low spec computer Jetson Nano.

References

Prof. Hokeun Kim

Computer Science and Engineering, School of Computing and Augmented Intelligence
Arizona State University

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