

Sujin Park

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Research Interests

Operating Systems, Performance Monitoring & Optimization, and Trusted Execution Environment

Education

Georgia Institute of Technology Atlanta, GA
Ph.D. Candidate in Computer Science 2019 - 2025

- Advisor: [Prof. Taesoo Kim](#) [🔗](#)
- Thesis: Customizing System Software for Performance, Flexibility, and Isolation

Sungkyunkwan University (SKKU) Suwon, South Korea
B.S. in Computer Science and Engineering 2014 - 2019

Experience

Systems Software & Security Lab, Georgia Tech Atlanta, GA
Research Assistant Aug. 2019 - present

- Proposed a systematic framework and LLM-based assistant for optimizing system performance [\[1\]](#).
- Built a TEE-enabled OS, firmware, and secure runtime for robotics using RISC-V WorldGuard to support secure and scalable enclave execution.

Microsoft Research Redmond, WA
Research Intern May. 2024 - Aug. 2024

- Worked in [security research group](#).
- Designed and built a sandboxing prototype to safely execute AI-generated code.

Meta Menlo Park, CA
Visiting Researcher (*full-time*) Jun. 2022 - Dec. 2022

- Worked in capacity engineering & analysis team.
- Contributed to performance tracing and analysis tool ([Dyналog](#) [🔗](#)) using Intel PT and LLVM project.

Samsung Research Seoul, South Korea
Research Intern Jan. 2022 - May. 2022

- Worked in system security team.
- Designed and implemented secure hypervisor for Arm-based confidential computing architecture ([Islet](#) [🔗](#)).

Robust Scalable Systems Software Lab, EPFL Lausanne, Switzerland
Visiting Ph.D. Student May. 2021 - Dec. 2021

- Advisor: [Prof. Sanidhya Kashyap](#)
- Developed framework to safely modify kernel locks on the fly without requiring kernel install or reboot. The framework allows users to customize locks in Linux kernel for performance optimization [\[2, 3\]](#).

UCARE Lab, University of Chicago Chicago, IL
External Collaborator Mar. 2019 - Aug. 2019

- Advisor: Prof. Haryadi Gunawi
- Contributed to host/SSD co-designed flash array project providing strong predictability without sacrificing performance. Implemented write buffer cache and flush mechanism in flash emulator.
- Acknowledged in the [paper \(SOSP 2021\)](#) for initial contribution.

Distributed Computing Lab, SKKU Suwon, South Korea
Research Assistant Mar. 2017 - Feb. 2019

- Advisor: Prof. Young Ik Eom
- Developed virtual machine monitoring tool to classify different types of shared memory [\[4, 5\]](#).
- Analyze performance characteristics of flash translation layer (FTL) and I/O using OpenSSD [\[7\]](#).

Parallel Systems Architecture Lab, EPFL

Summer Intern

Lausanne, Switzerland

Jun. 2018 - Aug. 2018

- Advisor: Prof. Babak Falsafi
- Developed debugger for [QFlex](#), computer architecture simulation of multi-node system. Developed log parser, built database and systematized them to enable process tracking and error detection.

Machine to Machine Lab, Purdue University

Capstone Project

West Lafayette, IN

Sep. 2017 - Dec. 2017

- Advisor: Prof. Eric Matson
- Introduced a new goal distribution strategy for distributed multi agent systems [6]. The approach was tested and verified using StarCraft II API and broker communication model.

Publications

[1] Principles and Methodologies for Serial Performance Optimization.

[Sujin Park](#), Mingyu Guan, Xiang Cheng, and Taesoo Kim.

The 19th USENIX Symposium on Operating Systems Design and Implementation (OSDI), 2025.

[2] Application-Informed Kernel Synchronization Primitives.

[Sujin Park](#), Diyu Zhou, Yuchen Qian, Irina Calciu, Taesoo Kim and Sanidhya Kashyap.

The 16th USENIX Symposium on Operating Systems Design and Implementation (OSDI), 2022.

[3] Contextual Concurrency Control.

[Sujin Park](#), Irina Calciu, Taesoo Kim and Sanidhya Kashyap.

The 18th Workshop on Hot Topics in Operating Systems (HotOS), 2021.

[4] Introspection of Virtual Machine Memory Resource in the Virtualized Systems.

Minho Lee, [Sujin Park](#), Yongju Song, and Young Ik Eom.

The IEEE International Conference on Big Data and Smart Computing (BigComp), 2019.

[5] Real-time Memory Share Monitoring for Memory Efficiency in Virtualized Systems.

[Sujin Park](#), Yongju Song, and Young Ik Eom.

The Korea Computer Congress (KCC), 2018.

[6] Collaborative Goal Distribution in Distributed Multiagent Systems.

[Sujin Park](#), Sanguk Park, Hyeonggun Lee, Minji Hyun, Eunsuh Lee, Jeonghyeon Ahn, Lauren Featherstun, Yongho Kim and Eric Matson.

The Second IEEE International Conference on Robotic Computing (IRC), 2018.

[7] I/O Performance Analysis by Page Size in SSD Devices.

[Sujin Park](#), Yongju Song, and Young Ik Eom.

The Korea Computer Congress (KCC), 2017.

Teaching

CS6220: High Performance Computing

Spring 2024

Teaching Assistant, Georgia Tech

CS3210: Designing Operating System

Spring 2020

Teaching Assistant, Georgia Tech

- This course builds a toy operating system in Rust on bare-metal Raspberry Pi 3.
- Designed initial course materials and [labs](#).

Problem Solving and Algorithm course

Fall 2018

Teaching Assistant, SKKU

- Lead lab sessions for data structures and algorithms course.

Honors and Awards

Grace Hopper Conference Travel Grant	2019
Graduate Study Fellowship , Chungnam State Government, South Korea	2019 - 2021
Women Techmakers Scholars (Anita Borg Scholars), Google <ul style="list-style-type: none">◦ acceptance rate: 0.3% = 73/25,000	2018
Summer@EPFL <ul style="list-style-type: none">◦ acceptance rate: 2-3%	2018
Dean's List , SKKU <ul style="list-style-type: none">◦ awarded four consecutive semesters	2016 - 2018
Academic Scholarship , SKKU <ul style="list-style-type: none">◦ full tuition for 4 years	2014 - 2018
K-SW Purdue Fellowship , South Korean Government (IITP)	2017
Best Paper , Korea Computer Congress (KCC)	2017
Impact Award , Develop with Google	2017
Finalist , Samsung Collegiate Programming Cup (SCPC)	2016
1st Place , Information Security Contest, SKKU	2015

Patents

Young Ik Eom, Yongju Song, **Sujin Park**. Real-time Memory Share Monitoring for Virtualized Systems. KR-Patent 10-2018-0164420

Selected Talks

[Contextual Concurrency Control](#) [↗](#), eBPF Summit Aug. 2021

Technical Skills

Languages

- C/C++, **Rust**, Python, Shell script and Assembly

Software Skills

- Operating System - Linux Kernel Development
- Virtualization - KVM, QEMU, Docker
- Confidential Computing - RISC-V PMP/WorldGuard, Arm TrustZone/CCA, Intel SGX/TDX, AMD SEV
- Database - MySQL, Neo4j
- Performance Test - Various benchmarks for system performance measurement