

# Seah Kim

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## [ Education ]

### University of California, Berkeley

Aug 2019 –

Degree: Ph.D. in Electrical Engineering and Computer Sciences

Advisor: Yakun Sophia Shao, Borivoje Nikolic

### Seoul National University

Mar 2014 – Feb 2019

Degree: B.S. in Electrical and Computer Engineering

## [ Research Interest ]

Computer Architecture and VLSI, SoC Design, Systems for ML, Design Methodology

## [ Publication ]

\*\*Excluding Workshops\*\*

### SuperNoVA: Algorithm-Hardware Co-Design for Resource-Aware SLAM

[Seah Kim](#), Roger Hsiao, Borivoje Nikolic, James Demmel, Yakun Sophia Shao

*International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), April 2025 (To appear).*

### AuRORA: A Full-Stack Solution for Scalable and Virtualized Accelerator Integration

[Seah Kim](#), Jerry Zhao, Krste Asanovic, Borivoje Nikolic, Yakun Sophia Shao

*IEEE Micro (Top Picks 2023 Issue), July-August 2024.*

### DREAM: A Dynamic Scheduler for Dynamic Real-time, Multi-model ML Workloads

[Seah Kim](#), Hyoukjun Kwon, Jinook Song, Jihyuck Jo, Yu-Hsin Chen, Liangzhen Lai, Vikas Chandra

*International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), March 2023 (presented at ASPLOS 2024).*

### AuRORA: Virtualized Accelerator Orchestration for Multi-Tenant Workloads

[Seah Kim](#), Jerry Zhao, Krste Asanovic, Borivoje Nikolic, Yakun Sophia Shao

*International Symposium on Microarchitecture (MICRO), October 2023.*

**Selected as IEEE Micro Top Picks (2023)**

### RoSÉ: A Hardware-Software Co-Simulation Infrastructure Enabling Pre-Silicon Full-Stack Robotics SoC Evaluation

Dima Nikiforov, Shengjun Chris Dong, Chengyi Lux Zhang, [Seah Kim](#), Borivoje Nikolic, Yakun Sophia Shao

*International Symposium on Computer Architecture (ISCA), 2023.*

**ISCA Distinguished Artifact Award**

### MoCA: Memory-Centric, Adaptive Execution for Multi-Tenant Deep Neural Networks

[Seah Kim](#), Hasan Genc, Vadim Nikiforov, Krste Asanovic, Borivoje Nikolic, Yakun Sophia Shao

*IEEE International Symposium on High-Performance Computer Architecture (HPCA), March 2023.*

### Gemmini: Enabling Systematic Deep-Learning Architecture Evaluation via Full-Stack Integration

Hasan Genc, [Seah Kim](#), Alon Amid, Ameer Haj-Ali, Vighnesh Iyer, Pranav Prakash, Jerry Zhao, Daniel Grubb, Harrison Liew, Howard Mao, Albert Ou, Colin Schmidt, Samuel Steffl, John Wright, Ion Stoica, Jonathan Ragan-Kelley, Krste Asanovic, Borivoje Nikolic, Yakun Sophia Shao  
*Design Automation Conference (DAC), December 2021.*

**DAC Best Paper Award**

## [ Experience ]

*[UC Berkeley]*

Present Graduate student researcher @ Berkeley Architecture Research

- Led an Intel16 chip tape-out: design submitted in December 2023, tested in Summer 2024, paper draft (first-author) ready

*[Meta Reality Labs]*

May 2022 – AI Research Intern  
Aug 2022

- Worked on scheduler for AR/VR application
- Paper accepted (ASPLOS 2023)

*[Apple]*

May 2021 – SPG intern  
Aug 2021

- Design an accelerator architecture for sparse data structure
- Performance modeling for cycle-accurate simulation

*[Seoul National University]*

Jan 2018 – Undergraduate Researcher @ Integrated Systems Design Lab (ISDL)  
July 2019 Research Advisor: Prof. Deog-Kyoon Jeong

- Designed transmitter for automotive imaging sensor
- Participated in Samsung 28nm and TSMC 40nm CMOS tape-out of fractional digital phase locked loop using Injection Locking Oscillator

## [ Tutorial ]

**Full-System, Full-Stack ML SoC Architecture Research with FireSim, Chipyard, Gemmini and AuRORA**

[Seah Kim](#), Abraham Gonzalez, Jerry Zhao, Joonho Whangbo, Vikram Jain  
*International Symposium on Microarchitecture (MICRO), November 2024.*

**Gemmini: Generate Custom DNN Accelerators with Full-System Full-Stack Evaluation**

Hasan Genc, Simon Guo, [Seah Kim](#), Vadim Nikiforov  
*Machine Learning and Systems (MLSys), August 2022.*

## [ Teaching Experience & Extracurricular Activity ]

*[UC Berkeley]*

Spring 2024 Guest Lecturer for Hardware for Machine Learning (EE290)  
Fall 2022 GSI for Introduction to Digital Design and Integrated Circuits (EECS 151/251A)  
Fall 2020 GSI for Great Ideas in Computer Architecture (CS 61C)

*[Seoul National University]*

2018 Tutor for major courses (Integrated Circuits)  
2014 Class representative (Lullu, Department of ECE)

2014 Campus Mentoring Program

**[ Award & Fellowship ]**

2024 MICRO PhD Forum  
2024 Rising Stars in EECS  
2024 AuRORA selected as IEEE Micro's Top Pick in Computer Architecture  
2023 Selected as a Machine Learning and Systems Rising Star  
2023, 2024 Qualcomm Innovation Fellowship Finalist  
2023 ISCA Distinguished Artifact Award  
2021 Paper selected as a DAC Best Paper  
2020 AI Compute Symposium Top Poster Award  
*IBM and IEEE CAS/EDS*  
2019 Fall EECS departmental fellowship  
*UC Berkeley*  
2019 - 2022 Study Abroad Scholarship  
*Kwanjeong Educational Foundation*  
2016 - 2018 National Scholarship for Science and Engineering  
*Korea Student Aid Foundation*

**[ Service ]**

2024 IISWC Artifact Evaluation Committee  
2024 EECS Visit Day Area Student Lead Organizer