

# Seah Kim

Contact: [seah@berkeley.edu](mailto:seah@berkeley.edu)

## < 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 4x4mm<sup>2</sup> real-time ML chip tape-out (design submitted on December 2023, paper *under submission*)

*[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 at MICRO 2024**

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

**Gemmini: Generate Custom DNN Accelerators with Full-System Full-Stack Evaluation at MLSys 2024**

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

## < Teaching Experience & Extracurricular Activity >

*[UC Berkeley]*

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