

Seah Kim

Contact: 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 4x4mm² 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