SEO JIN PARK

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EMPLOYMENT

University of Southern California, Los Angeles, CA   8/2023 –
Assistant Professor in Computer Science

Google, Sunnyvale, CA   8/2022 – 08/2023
Systems Research Engineer at Systems Research Group

Massachusetts Institute of Technology, Cambridge, MA   10/2019 – 7/2022
Postdoctoral associate at Computer Science and Artificial Intelligence Laboratory (CSAIL)
Advisor: Prof. Mohammad Alizadeh

EDUCATION

Stanford University, Stanford, CA   09/2013 – 10/2019
Ph.D. in Computer Science
Advisor: Prof. John Ousterhout

Massachusetts Institute of Technology, Cambridge, MA   06/2012 – 06/2013
M.Eng. in Electrical Engineering and Computer Science
Advisor: Prof. Armando Solar-Lezama

Massachusetts Institute of Technology, Cambridge, MA   09/2008 – 06/2013
B.S. in Computer Science and in Mathematics

RESEARCH

Areas of interest: distributed systems, systems for machine learning, and low-latency systems.

Vision: The goal of my research is to make cluster-scale parallel systems efficient so that big data applications (e.g., DNN training, analytics) can run 100–1000x faster.

Projects: granular computing: [9][5][4][2], systems for efficient ML: [7], low-latency debugging: [3][14], energy-efficient computing: [1] blockchain: [8], low-latency concensus: [13][10][12], distributed storage systems: [15][16], server overload control: [6][11]

PREPRINTS

[1] **Lovelock: Towards Smart NIC-hosted Clusters**
Seo Jin Park, Ramesh Govindan, Kai Shen, David Culler, Fatma Özcan, Geon-Woo Kim, and Hank Levy
Under submission, 2023

[2] **Quicksand: Harnessing Stranded Datacenter Resources with Granular Computing**
Zhenyuan Ruan, Shihang Li, Kaiyan Fan, Marcos K. Aguilera, Adam Belay, Seo Jin Park, and Malte Schwarzkopf
Under submission, 2023

PUBLICATIONS

[3] **LDB: An Efficient Latency Debugging Tool for Datacenter Applications**
Inho Cho, Seo Jin Park, Ahmed Saeed, Mohammad Alizadeh and Adam Belay
21st USENIX Symposium on Networked Systems Design and Implementation (NSDI'24), To appear
Acceptance rate for fall submissions: 19.1%, 72 out of 376.

[4] **Unleashing True Utility Computing with Quicksand**
Zhenyuan Ruan, Shihang Li, Kaiyan Fan, Marcos K. Aguilera, Adam Belay, Seo Jin Park, and Malte Schwarzkopf
The 19th Workshop on Hot Topics in Operating Systems (HotOS'23), June 2023
Acceptance rate: 26.5%, 31 out of 117.

[5] **Nu: Achieving Microsecond-Scale Resource Fungibility with Logical Processes**
Zhenyuan Ruan, Seo Jin Park, Marcos K. Aguilera, Adam Belay, and Malte Schwarzkopf
20th USENIX Symposium on Networked Systems Design and Implementation (NSDI'23), April 2023
Acceptance rate for spring submissions: 18.4%, 50 out of 272.

[6] **Protego: Overload Control for Applications with Unpredictable Lock Contention**
Inho Cho, Ahmed Saeed, Seo Jin Park, Mohammad Alizadeh and Adam Belay
20th USENIX Symposium on Networked Systems Design and Implementation (NSDI'23), April 2023
Acceptance rate for spring submissions: 18.4%, 50 out of 272.

[7] **Efficient Strong Scaling Through Burst Parallel Training** [link]
Seo Jin Park, Joshua Fried, Sunghyun Kim, Mohammad Alizadeh, and Adam Belay
5th Conference on Machine Learning and Systems (MLSys'22), August 2022
Acceptance rate: 20.6%, 51 out of 247.

[8] **DispersedLedger: High-Throughput Byzantine Consensus on Variable Bandwidth Networks** [link]
Lei Yang, Seo Jin Park, Mohammad Alizadeh, Sreeram Kannan, and David Tse
19th USENIX Symposium on Networked Systems Design and Implementation (NSDI'22), April 2022
Acceptance rate for spring submissions: 26.9%, 28 out of 104.

[9] **MilliSort and MilliQuery: Large-Scale Data-Intensive Computing in Milliseconds** [link]
Yilong Li*, Seo Jin Park*, and John Ousterhout (*co-first author)
18th USENIX Symposium on Networked Systems Design and Implementation (NSDI'21), April 2021
Acceptance rate for fall submissions: 15.7%, 40 out of 255.

[10] **EPaxos Revisited** [link]
Sarah Tollman, Seo Jin Park, and John Ousterhout
18th USENIX Symposium on Networked Systems Design and Implementation (NSDI'21), April 2021
Acceptance rate for fall submissions: 15.7%, 40 out of 255.

[11] **Overload Control for µs-scale RPCs with Breakwater** [link]
Inho Cho, Ahmed Saeed, Joshua Fried, Seo Jin Park, Mohammad Alizadeh and Adam Belay
14th USENIX Symposium on Operating Systems Design and Implementation (OSDI'20), November 2020
Acceptance rate: 17.6%, 70 out of 398.

[12] **Toward Scalable Replication Systems with Predictable Tails Using Programmable Data Planes**
[link]
Sean Choi, Seo Jin Park, Muhammad Shahbaz, Balaji Prabhakar and Mendel Rosenblum
3rd Asia-Pacific Workshop on Networking (APNet'19), August 2019
Acceptance rate: 37.8%, 14 out of 37. (best paper award)

[13] **Exploiting Commutativity For Practical Fast Replication** [link]
Seo Jin Park and John Ousterhout
16th USENIX Symposium on Networked Systems Design and Implementation (NSDI'19), February 2019
Acceptance rate for fall submissions: 12.5%, 30 out of 240.

[14] **NanoLog: A Nanosecond Scale Logging System** [link]
Stephen Yang, Seo Jin Park and John Ousterhout
2018 USENIX Annual Technical Conference (ATC'18), July 2018
Acceptance rate: 20.1%, 76 out of 378.

[15] **Implementing Linearizability at Large Scale and Low Latency** [link]
Collin Lee*, Seo Jin Park*, Ankita Kejriwal, Satoshi Matsushita, and John Ousterhout (*co-first author)
The 25th ACM Symposium on Operating Systems Principles (SOSP'15), October 2015
Acceptance rate: 16.1%, 30 out of 186.

[16] **The RAMCloud Storage System** [link]
John Ousterhout, Arjun Gopalan, Ashish Gupta, Ankita Kejriwal, Collin Lee, Behnam Montazeri, Diego Ongaro,

<u>Seo Jin Park</u>, Henry Qin, Mendel Rosenblum, Stephen Rumble, Ryan Stutsman, and Stephen Yang
ACM Transactions on Computer Systems (TOCS) 33, 3, Article 7, August 2015

Teaching and Mentoring

Mentoring

Yibo Yan, USC PhD	08/2023 – current
Wanyu Zhang, USC Master	08/2023 – current
Jing-Wen Chen, USC Master	01/2024 – current
Omkar Kulkarni, USC Master	01/2024 – current
Chieh Nien, USC Master	01/2024 – current
Edward Lin, USC Undergrad	09/2023 – current
Inho Cho, MIT PhD'23	10/2019 – 08/2023
Zhenyuan Ruan, MIT PhD	01/2021 – 08/2023
Joshua Fried, MIT PhD	01/2021 – 08/2022
Lei Yang, MIT PhD	10/2019 – 04/2022
Sunghyun Kim, MIT PhD	11/2020 – 12/2021
Sarah Tollman, Stanford Master'20	09/2019 – 06/2020
Emma Dauterman, Stanford Undergrad'18	Spring 2018

Teaching

Distributed Systems (CSCI 599) Instructor, University of Southern California	Fall 2023
Distributed Systems (CS 244b) TA, Stanford University	Fall 2017
Database Systems Principles (CS 245) TA, Stanford University	Winter 2016
Introduction to EECS II: Digital Communication Systems (6.02) Lab Assistant, MIT	Spring 2011

Service

Program Committee, 22st USENIX Symposium on Networked Systems Design and Implementation (NSDI'25) 2024-2025	
Program Committee, ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS'25)	2024-2025
Program Committee, 20th International Conference on emerging Networking EXperiments and Technologies (CoNEXT'24)	2023-2024
Program Committee, 21st USENIX Symposium on Networked Systems Design and Implementation (NSDI'24) 2023-2024	
Program Committee, 14th ACM SIGOPS Asia-Pacific Workshop on Systems (APSys'23)	2023
Program Committee & Session Chair, 13th ACM Symposium on Cloud Computing (SoCC'22)	2022
Editorial Board Member, Journal of systems research (JSys), distributed consensus area	2021

Awards

APNet'19 Best Paper Award	2019
Samsung Scholarship, grants $250,000 over five years of graduate study	2013 – 2018
STX Scholarship, grants $200,000 over four years of undergrad study	2008 – 2012