(203) 300-9151
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Juno Kim

CS Ph.D. student

GitHub: juno-kim
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My research interest lies in building fast data processing systems by leveraging emerging memory/storage technologies such as persistent memory (PMEM) or modern solid-state drives. At UCSD, I worked on performance optimizations of legacy applications and file systems for PMEM (ASPLOS 2019), performance characterization of the commercial persistent memory device (FAST 2020), and new PMEM-based file system interface (APSys 2020). Currently, I am working on supporting fast graph analytics by leveraging modern SSDs (in progress) and improving the performance of serverless platforms by leveraging persistent memory (in progress).

Before coming to UCSD, I spent a year at Yale where I worked on building a highly scalable distributed storage called FuzzyLog (OSDI 2018).

Education

Ph.D. in Computer Science, *University of California, San Diego* — Expected Mar 2023
Advisor: Dr. Steven Swanson

M.S. in Computer Science, *University of California, San Diego* — Jun 2020
Advisor: Dr. Steven Swanson

B.S. in Electrical & Computer Engineering, *Seoul National University, Korea* — Feb 2012

Publication

Ayudante: A Deep Reinforcement Learning Approach to Assist Persistent Memory Programming — **ATC 2021**
*Hanxian Huang, Zixuan Wang, **Juno Kim**, Steven Swanson, and Jishen Zhao*

Sub-Zero: Zero-copy IO for Persistent Main Memory File Systems — **APSys 2020**
***Juno Kim**, Yun Joon Soh, Joseph Izraelevitz, Jishen Zhao, Steven Swanson*

- Awareded best paper.

An Empirical Guide to the Behavior and Use of Scalable Persistent Memory — **FAST 2020**
*Jian Yang, **Juno Kim**, Morteza Hoseinzadeh, Joseph Izraelevitz, Steven Swanson*

- Appeared at NVMW'20 as well.
- Appeared in USENIX ;login: Fall 2020.

(Preprint) Basic Performance Measurements of the Intel Optane DC Persistent Memory Module — **arXiv 2019**
*Joseph Izraelevitz, Jian Yang, Lu Zhang, **Juno Kim**, Xiao Liu, Amirsaman Memaripour, Yun Joon Soh, Zixuan Wang, Yi Xu, Subramanya R Dulloor, Jishen Zhao, Steven Swanson*

Finding and Fixing Performance Pathologies in Persistent Memory Software Stacks — **ASPLOS 2019**
Jian Xu, **Juno Kim***, Amirsaman Memaripour, Steven Swanson (*co-first authors)*

The FuzzyLog: A Partially Ordered Shared Log — **OSDI 2018**
*Joshua Lockerman, Jose Faleiro, **Juno Kim**, Soham Sankaran, Daniel Abadi, James Aspnes, Siddhartha Sen, Mahesh Balakrishnan*

Technical Experience

Software Engineering Intern — **Jun 2021 — Sep 2021**
Intel Optane Group (Mentor: Andy Rudoff, Piotr Balcer) — *Virtual*

- Worked on prototyping a software library that leverages Intel's Data Streaming Accelerator (DSA) technology for efficient persistent memory access.

Research Intern — **Jun 2019 — Sep 2019**
IBM Research Storage Group (Mentor: Deepavali Bhagwat, Scott Guthridge) — *San Jose, CA*

- Worked on building a testing tool for checking crash-consistency of persistent memory-aware programs.

Software Engineer — **Dec 2011 — Jul 2014**
SAP Labs — *Seoul, Korea*

- Worked on building in-memory database engine with the focus on efficient database metadata access in distributed environment.

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Talks

Sub-Zero: Zero-copy IO for Persistent Main Memory File Systems — APSys 2020, Virtual

Finding and Fixing Performance Pathologies in Persistent Memory Software Stacks — ASPLOS 2019, Providence, RI

Service

External reviewer at DISC 2020
External reviewer at IEEE MASCOTS 2019

Teaching Experience

Modern Storage Systems (UCSD CSE291A), Fall 2019
Instructor: Dr. Steven Swanson

Skills

Languages	C/C++, Python, Shell, SQL
Communication	English, Korean, Japanese