

JUNO KIM

PhD Student in Computer Science
Nationality: Korean

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RESEARCH INTERESTS

I am generally interested in building fast, reliable, and flexible storage systems by leveraging emerging, persistent memory technologies. My current research focuses on the performance analysis and optimizations of file systems and applications by adapting their design to persistent memory. I am also interested in building distributed storage systems.

EDUCATION

Ph.D. student, Computer Science, University of California, San Diego 2017 - Present
Advised by Prof. Steven Swanson.

B.S., ECE, Seoul National University Feb 2012
Overall GPA: 4.04/4.3 (*honors*)

PUBLICATIONS

An Empirical Guide to the Behavior and Use of Scalable Persistent Memory. FAST 2020 (to appear).

Jian Yang, **Juno Kim**, Mortez Hoseinzadeh, Joseph Izraelevitz, Steven Swanson

Basic Performance Measurements of the Intel Optane DC Persistent Memory Module. arXiv paper.

J. Izraelevitz, J. Yang, L. Zhang, **J. Kim**, X. Liu, A. Memaripour, Y. Soh, Z. Wang, Y. Xu, S. Dulloor, J. Zhao, S. Swanson

Finding and Fixing Performance Pathologies in Persistent Memory Software Stacks. ASPLOS 2019.

Jian Xu*, **Juno Kim***, Amirsaman Memaripour, and Steven Swanson. (* denotes equal contribution.)

The FuzzyLog: A Partially Ordered Shared Log. OSDI 2018.

Joshua Lockerman, Jose Faleiro, **Juno Kim**, Soham Sankaran, Daniel Abadi, James Aspnes, Siddhartha Sen, and Mahesh Balakrishnan.

RELEVANT EXPERIENCE

Graduate Researcher, University of California, San Diego Sep 2017 - Present

Topic: Persistent memory file systems and applications.

At UCSD, I am exploring potential ways for legacy applications (e.g., databases, key-value stores) and file systems to maximize their performances on persistent memory. Also, I am working on a new storage software design and implementation that is tailored for the characteristics of persistent memory.

Research Intern, IBM Research Almaden, San Jose Jun 2019 - Sep 2019

Topic: Testing framework for persistent memory programs.

Reliable programs written for persistent memories require both crash-consistency and fault-tolerance. During my internship, I explored potential ways to test such properties using Pin, a binary instrumentation tool.

Graduate Researcher, Yale University Aug 2016 - May 2017

Topic: Partially ordered distributed storage system.

Shared log approach for building distributed storage systems has suffered scalability bottleneck by a centralized totally-ordered log. This work explored a new shared log design that exposes partial order to the programmers.

Software Engineer, SAP Labs Korea Dec 2011 - July 2014

Topic: Main-memory database system SAP HANA.

In contrast to disk (or SSD) based database systems, main-memory database provides high performance by keeping entire data in fast, volatile memory. At SAP, I worked on database metadata access optimizations in single and distributed settings for its database product HANA.

PROGRAMMING SKILLS

C/C++, Python, Java, Shell.

LANGUAGES

English, Japanese: Proficient. Korean: Native.