

Gihwan Oh

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EDUCATION

Sungkyunkwan University

MS & Ph.D., Electrical and Computer Engineering

South Korea

Expected 2021

- Received Global Ph.D. Fellowship from National Research Foundation of Korea (2014-2019)
- Received Naver Ph.D. Fellowship Award – Computer Engineering Field
- Received Samsung HumanTech Paper Award – Bronze Prize

Sungkyunkwan University

B.S., Computer Engineering

South Korea

August, 2013

- Received 2011 ACM-ICPC Asia/Seoul Regional Bronze Prize (9th place)
- 2011 ACM SIGMOD Undergraduate Research Poster Competition

RESEARCH AND TECHNICAL EXPERIENCE

Sungkyunkwan University

Graduate Researcher

2013 - Present

- Discovering application context (I/O, lock, transaction) aware vertical optimizations
- Implemented two NVM-based logging system for SQLite
- Developed a novel SHARE interface to guarantee data consistency and durability
- Developed a novel X-FTL interface to guarantee database atomicity
- Teaching assistant for 6 courses

Couchbase

Graduate Research Intern

Mountain View, CA

2014. 02 – 2014. 03

- Ported ForestDB to Android platform
- Designed a SHARE interface for ForestDB

SAMSUNG Semiconductor Research

Graduate Research Assistant

San Jose, CA

2013. 01 – 2013.03, 2013. 07 – 2013. 09

- Developed a data visualization tools for Hadoop applications and HDFS
- Designed database storage engine for durable SSDs
- Refactored intelligent SSD's FTL

Indilinx Team, OCZ Technology

Undergraduate Intern

San Jose, CA

2012. 01 – 2012. 02

- Refactor greedy FTL for OpenSSD Jasmine
- Implement sector-level mapping FTL for OpenSSD Jasmine

Sungkyunkwan University

Undergraduate Researcher

2011 - 2012

- Conducted and surveyed flash memory based DBMS techniques
- Developed CPU cache-aware hash join

Altibase

Undergraduate Research Intern

Seoul, Korea

2011. 07 – 2011. 08

- Implemented Altibase extended cache using flash SSD

ADDITIONAL EXPERIENCE

- FlashSQL: NVM based high performance Open Source DBMS development (MySQL base) project, 2015 - present
- Optimizing DB storage engines for next-generation storage architecture with *Samsung Electronics*, 2019 - present
- Optimizing system software for modern SSDs including NVMe and NVDIMM with *Samsung Electronics*, 2016 - 2018
- Optimizing RocksDB for Redis backend KV store with *SKT*, 2018. 10 – 2018. 12
- Optimizing RocksDB Compaction for log database with *SKT*, 2017. 07 – 2017. 12
- Optimizing ForestDB on Flash Memory SSDs with *Couchbase*, 2014. 10 – 2015. 09
- Prototype of X-FTL on *SK Hynix* systems, 2014
- Optimizing SQLite database for mobile platforms with *Samsung electronics*, 2013 - 2015

SKILLS & INTERESTS

Language: Korean (Native), English (Intermediate)

Programming skills: C, C++, Shell Script, Python, Javascript, Dart, Java

Interests: RDBMS, Storage engines, Key-value stores, Non-volatile memory systems, Vertical optimizations for HW/SW coordination, Flash translation layer, Filesystems, Buffer management

SELECTED PUBLICATIONS (5 of 26)

- Dong Hyun Kang, **Gihwan Oh**, Dongki Kim, In Hwan Doh, Changwoo Min, Sang-Won Lee, and Young Ik Eom. (2018) When Address Remapping Techniques Meet Consistency Guarantee Mechanisms, *HotStorage*
- Jong-Hyeok Park, **Gihwan Oh**, and Sang-Won Lee. (2018) SQL Statement Logging for Making SQLite Truly Lite, *VLDB*
- **Gihwan Oh**, Chiyong Seo, Ravi Mayuram, Yang-Suk Kee, and Sang-Won Lee. (2016) SHARE Interface in Flash Storage for Databases, *ACM SIGMOD*
- **Gihwan Oh**, Sangchul Kim, Sang-Won Lee, and Bongki Moon. (2015) SQLite Optimisation with Phase Change Memory for Mobile Applications, *VLDB*
- Woon-Hak Kang, Sang-Won Lee, Bongki Moon, **Gi-Hwan Oh**, and Changwoo Min. (2013) X-FTL: Transactional FTL for SQLite Databases, *ACM SIGMOD*