Junhyeok Park

Computer System Researcher

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PROFILE

HELLO WORLD

Now I'm a Master's student in CSE at Sogang University, and a research assistant in DISCOS Laboratory. My goal is to become an awesome system researcher who makes the world convenient!

EDUCATION

SOGANG UNIVERSITY

M.S in Computer Science and Engineering (2024.03-present)
→ Advisor: Prof. Youngjae Kim

SOGANG UNIVERSITY

B.S in Computer Science and Engineering (2024.02)
→ CGPA: 4.15/4.50 (Magna Cum Laude, 5th out of 69)

WORK EXPERIENCE

RESEARCH ASSISTANT, DISCOS Laboratory,
Sogang University, Seoul (2023.01-present)

PUBLICATION

ByteExpress: A High-Performance and Traffic-Efficient Inline Transfer of Small Payloads over NVMe (**J.Park**, J.Lee, Y.Kim) [ACM HotStorage '25] *(pdf) (talk)*

KVAccel: A Novel Write Accelerator for LSM-Tree-Based KV Stores with Host-SSD Collaboration (K.Kim, H.Chung, S.Ahn, **J.Park**, S.Jamil, H.Byun, M.Lee, J.Choi, Y.Kim) [IEEE IPDPS '25] *(pdf) (talk)*

Maximizing Interconnect Bandwidth and Efficiency in NVMe-Based Key-Value SSDs with Fine-Grained Value Transfer (**J.Park**, C.-G.Lee, S.Hwang, S.-J.Cha, W.Chung, Y.Kim) [IEEE Micro '25] *(pdf)*

Improving SQL Query Execution of Distributed Query Engines on Object-Based Computational Storage through Multi-Layered Offloading (S.Hwang, **J.Park**, J.Ryu, J.Park, J.Lee, J.Noh, S.Yang, W.Chung, Y.Kim) [PDSW '24] *(pdf) (talk)*

BandSlim: A Novel Bandwidth and Space-Efficient KV-SSD with an Escape-from-Block Approach (**J.Park**, C.-G.Lee, S.Hwang, S.Yang, J.Noh, W.Chung, J.Lee, Y.Kim) [ICPP '24] *(pdf) (talk)*

OctoFAS: A Two-Level Fair Scheduler that Increases Fairness in Network-Based Key-Value Storage (Y.Park, **J.Park**, J.Park, A.Khan, K.Kim, S.-S.Park, Y.Kim) [Electronics '24] *(pdf)*

OctoKV: An Agile Network-based Key-Value Storage System with Robust Load Orchestration (Y.Park, **J.Park**, A.Khan, J.Park, C.Lee, W.Chung, Y.Kim) [MASCOTS '23] *(pdf) (talk)*

PROJECT	**SK Hynix & Los Alamos National Laboratory.** *Object-based Computational Storage for Accelerating Data Analytics* (2024.01-present) *(sc23) (fms24) (sc24) (ces25)*
	Capstone Design Project. *TravelPT: ChatGPT-based Travel Guide Application* (2023.03-2023.06) *(poster)*
HONOR + AWARD	**Received a Graduate Scholarship from SK hynix Memory Systems Research** (2024.06)
	Albatross Fellowship upon the admission to the Sogang University Graduate School (2024.01)
	Best Excellence Award at the 2023-1 Sogang Convergence Technology Competition (2023.06)
TEACHING + TALK	**Designed and developed new coursework for Embedded Systems Software (CSE4116) at Sogang University,** covering the kernel I/O stack, SSD architecture, NVMe protocol, PCIe interconnect, and SSD firmware development on a Xilinx FPGA-based Cosmos+ OpenSSD board (2025.03–present)
	Optimizing NVMe-Based Key-Value Interfaces and Leveraging KVSSDs: A Comprehensive Study (Special Seminar at Soongsil University, presented by Prof. Youngjae Kim, 2025.04) *(pdf)*

State of the Key-Value Computational Solid State Drive (Advanced Database System, Sogang University Graduate School, 2024.04) *(pdf)*

TA Experience (Sogang University): Computer Science and Engineering Laboratory II (CSE3016-01, Spring 2025), Operating Systems (CSE4070-01, Fall 2024), Database Systems (CSE4110-02, Spring 2024)

SKILL + INTEREST	**Tool:** Vim, Git, C, C++, Python, Go, Scala, NVMe, SPDK, Xilinx SDK, AWS SDK, DOCA, gRPC, Spark, DuckDB, RocksDB, Arrow, Parquet, Substrait IR, Photoshop, draw.io, and etc
	Research Interest: Next-Generation Storage and Memory Devices, File and Storage Systems, Heterogeneous Computing, Database Management, Data Analytics Platforms, and etc
LANGUAGE	**KOREAN:** fluent (native) **ENGLISH:** advanced