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| **Junhyeok Park**  Computer System Researcher | |  |
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| **Profile** | Now I’m a Master’s student in Computer Science and Engineering at Sogang University, and a research assistant in DISCOS Laboratory. My goal is to become  an awesome computer system researcher who makes the world convenient! | |  |
| **Education** | SOGANG UNIVERSITY  M.S in [Computer Science and Engineering](https://cs.sogang.ac.kr/cs/index_new.html) (2024.03-present)  🡪 Advisor: [Prof. Youngjae Kim](https://sites.google.com/site/youkim/home)  SOGANG UNIVERSITY  B.S in [Computer Science and Engineering](https://cs.sogang.ac.kr/cs/index_new.html) (2024.02)  🡪 CGPA: 4.15/4.50 (Magna Cum Laude, 5th out of 69) | |  |
| **WORK EXPERIENCE** | **RESEARCH ASSISTANT**, [DISCOS](http://discos.sogang.ac.kr/) (Data-Intensive Computing & AI Systems) Laboratory, Sogang University, Seoul (2023.01-present) | |  |
| **Publication** | Integrating Distributed SQL Query Engines with Object-Based Computational Storage  J.Ryu, S.Hwang, **J.Park**, S.Ahn, J.Park, J.Lee, J.Yang, S.Yang, J.Noh, Q.Zheng, W.Chung, H.Kim, Y.Kim. [In Proceedings of the 11th International Workshop on Data Analysis and Reduction for Big Scientific Data (DRBSD), St. Louis, MO, USA, November 17, 2025] *(pdf) (talk)*  OpenCXD: An Open Real-Device-Guided Hybrid Evaluation Framework for CXL-SSDs  H.Chung\*, **J.Park\***, T.Noh, S.Ahn, K.Kim, M.Zhao, Y.Kim. [In Proceedings of the 33rd International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (**MASCOTS**), Paris, France, October 21-23, 2025] *(pdf) (talk) (*[*arxiv*](https://doi.org/10.48550/arXiv.2508.11477)*)*  OASIS: Object-based Analytics Storage for Intelligent SQL Query Offloading in Scientific Tabular Workloads  S.Hwang, J.Park, J.Ryu, S.Ahn, **J.Park**, J.Lee, S.Yang, J.Noh, W.Chung, H.Kim, Y.Kim. [arXiv preprint arXiv:2509.01966, September 2, 2025] *(*[*arxiv*](https://doi.org/10.48550/arXiv.2509.01966)*)*  ByteExpress: A High-Performance and Traffic-Efficient Inline Transfer of Small Payloads over NVMe  **J.Park**, J.Lee, Y.Kim. [In Proceedings of the 17th ACM Workshop on Hot Topics in Storage and File Systems (**ACM HotStorage**), Boston, MA, USA, July 10-11, 2025] *(*[*pdf*](https://doi.org/10.1145/3736548.3737837)*) (*[*talk*](https://junttang.github.io/assets/hotstorage25_byteexpress_talk.pdf)*)*  — ***Best Paper Award***  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. [In Proceedings of the 39th IEEE International Parallel and Distributed Processing Symposium (**IEEE IPDPS**), Milan, Italy, June 3-7, 2025] *(pdf) (*[*talk*](https://junttang.github.io/assets/ipdps25_kvaccel_talk.pdf)*)*  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 Special Issue on Cache Coherent Interconnects and Resource Disaggregation Techniques (**IEEE Micro**), Early Access, May 23, 2025] *(*[*pdf*](https://doi.org/10.1109/mm.2025.3572475)*)*  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. [Presented at the 9th International Parallel Data Systems Workshop (PDSW) Work-In-Progress (WiP), Atlanta, GA, USA, November 17, 2024] *(*[*pdf*](https://junttang.github.io/assets/pdsw24_ocs_wip_paper.pdf)*) (*[*talk*](https://junttang.github.io/assets/pdsw24_ocs_wip_talk.pdf)*)*  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. [In Proceedings of the 53rd International Conference on Parallel Processing (**ICPP**), Gotland, Sweden, August 12-15, 2024] *(*[*pdf*](https://doi.org/10.1145/3673038.3673064)*) (*[*talk*](https://junttang.github.io/assets/icpp24_bandslim_talk.pdf)*) (*[*nvramos24*](https://junttang.github.io/assets/nvramos24_bandslim_talk.pdf)*) (*[*kiise24*](https://junttang.github.io/assets/kiise24_bandslim_paper.pdf)*)*  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. [MDPI Electronics Special Issue on Distributed Computing and Storage Challenges for Emerging Applications (MDPI Electronics), Volume 13, Number 3, February 1, 2024] *(*[*pdf*](https://doi.org/10.3390/electronics13030619)*)*  OCTOKV: An Agile Network-based Key-Value Storage System with Robust Load Orchestration  Y.Park, **J.Park**, A.Khan, J.Park, C.-G.Lee, W.Chung, Y.Kim. [In Proceedings of the 31st International Symposium on Modeling, Analysis and Simulation of Computer and Telecommu-nication Systems (**MASCOTS**), Stony Brook, NY, USA, October 16-18, 2023] *(*[*pdf*](https://doi.org/10.1109/MASCOTS59514.2023.10387663)*) (*[*talk*](https://junttang.github.io/assets/mascots23_octokv_talk.pdf)*)* | |  |
| **PROJEct** | **SK Hynix & Los Alamos National Laboratory.** *Object-based Computational Storage for Accelerating Data Analytics*(2024.01-present) *(*[*sc23*](https://sc23.supercomputing.org/proceedings/exhibitor_forum/exhibitor_forum_pages/exforum116.html)*) (*[*fms24*](https://files.futurememorystorage.com/proceedings/2024/20240806_COMP-102-1_Chung_Zheng.pdf)*) (*[*sc24*](https://sc24.supercomputing.org/proceedings/exhibitor_forum/exhibitor_forum_pages/exforum107.html)*) (*[*ces25*](https://www.linkedin.com/posts/skhynix-america-inc_ces-lanl-aia-activity-7282884817057128449-BF6H?utm_source=share&utm_medium=member_desktop)*) (*[*fms25*](https://news.skhynix.com/future-of-memory-and-storage-2025/)*)*  **My Role:** Designed and implemented an in-storage query processing framework with a strong focus on horizontally and vertically distributed execution within a computational object storage system, comprising a network gateway and multiple storage arrays, each equipped with multiple data-aware CSDs.  **Capstone Design Project.**  *TravelPT: OpenAI ChatGPT-based Seoul Travel Guide Web Application*  (2023.03-2023.06) *(*[*poster*](https://junttang.github.io/assets/travelpt_poster.pdf)*)*  **My Role:** Designed and implemented an early-stage, low-latency Retrieval-Augmented Generation (RAG) pipeline using the OpenAI API and Firebase API. | |  |
| **HONOR +  AWARD** | Received the Pure Storage Best Paper Award at ACM HotStorage 2025 Workshop (2025.07)  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*](https://junttang.github.io/assets/kvssd_seminar_ssu.pdf)*)*  State of the Key-Value Computational Solid State Drive (Special Lecture for Advanced Database Systems (CSE6401), Sogang University Graduate School, 2024.04) *(*[*pdf*](https://junttang.github.io/assets/kv_csd.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, Linux, C, C++, Python, Go, Scala, NVMe, SPDK, Xilinx SDK, AWS SDK, DOCA, gRPC, Spark, DuckDB, RocksDB, Arrow, Parquet, Substrait, 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 | |