Joontaek Oh

Ph.D. candidate at Department of Electrical Engineering, KAIST, Daejeon, Korea
Nationality and Citizenship: Republic of Korea
Available to work for an internship program starting from June 2023

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Research Interest

Operating System, Linux kernel, Filesystem, EXT4, F2FS, XFS, Journaling, Log-structured Filesystem, Storage, SSD, Database systems, High-Performance storage system, Manycore scalability

References

Prof. Youjip Won | ywon@kaist.ac.kr — Dept. of Electrical Engineering, KAIST

Prof. Youngjin Kwon | yjkwon@kaist.ac.kr — School of Computing, KAIST

Prof. Changwoo Min | changwoo@vt.edu — Dept. of Computer Science, Virginia Tech

Education

Korea Advanced Institute of Science and Technologies (KAIST) — Daejeon, Korea
Ph.D. candidate, Department of Electrical Engineering — *Mar. 2020 – Present*

Hanyang University — Seoul, Korea
Ph.D student, Department of Computer Software — *Sep. 2018 – Feb. 2020*

Hanyang University — Seoul, Korea
MS, Department of Computer Software — *Mar. 2016 – Aug. 2018*

The Korean Academic Credit Bank System — Seoul, Korea
BS, Department of Information Security Engineering — *Mar. 2013 – Aug. 2015*

Publications

Conferences

1. [**USENIX FAST '23**] Joontaek Oh, Seung Won Yoo, Hojin Nam, Changwoo Min and Youjip Won, "CJFS : Concurrent Journaling for Better Scalability", In Proc. of USENIX Conference on File and Storage Technologies (FAST) 2023, Feb, 20-23, 2022
2. [**USENIX ATC '22**] Juwon Kim, Minsu Jang, Danish Muhammad Teeshen, Joontaek Oh, and Youjip Won "IPLFS: Log-Structured File System without Garbage Collection", In Proc. of USENIX Annual Technical Conference (ATC) 2022, July. 11-13, 2022
3. [**ACM SYSTOR '22**] Seung Won Yoo, Joontaek Oh, and Youjip Won "O-AFA: Order Preserving All Flash Array", in Proc. of The ACM International Systems and Storage Conference (SYSTOR), Haifa, Israel, June. 13-15, 2022

4. [**USENIX FAST '22**] Dohyun Kim, Kwangwon Min, Joontaek Oh, and Youjip Won "ScaleXFS: Getting scalability of XFS back on the ring", In Proc. of USENIX Conference on File and Storage Technologies (FAST) 2022, Feb, 22-24, 2022
5. [**USENIX FAST '22**] Joontaek Oh, Sion Ji, Yongjin Kim, and Youjip Won, "exF2FS: Transaction Support in Log-Structured Filesystem", In Proc. of USENIX Conference on File and Storage Technologies (FAST) 2022, Feb, 22-24, 2022
6. [**ICISS '19**] Myeongseon Kim, Joontaek Oh, Youjip won, "Barrier enabled QEMU", In Proc. of ICISS 2019, Tokyo, Japan, Mar. 2019
7. [**USENIX FAST '18**] Youjip Won, Jaemin Jung, Gyeongyeol Choi, Joontaek Oh, Seongbae Son, Jooyoung Hwang, Sangyeun Cho "Barrier Enabled IO Stack for Flash Storage", in proc. of USENIX Conference on File and Storage Technologies (FAST), Oakland, CA, USA, Feb. 12-15, 2018 (Awarded Best Paper)

Journals

1. [**ACM TOS**] Youjip Won, Joontaek Oh, Jaemin Jung, Gyeongyeol Choi, Seongbae Son, Jooyoung Hwang, Sangyeun Cho "Bringing Order to Chaos: Barrier-Enabled I/O Stack for Flash Storage", ACM Transactions on Storage (TOS)
2. [**ACM TOS**] Jinsoo Yoo, Joontaek Oh, Seongjin Lee, Youjip Won, Jin-Yong Ha, Jongsung Lee, Junseok Shim, "OrcFS: Orchestrated File System for Flash Storage", ACM Transactions on Storage (TOS), Vol. 14, Issue 2, Apr, 2018

Posters and Workshops

1. [**ACM APSys '21**] Kyoungho Koo, Joontaek Oh, Kwangwon Min, Youngjin Kwon, Youjip Won, "C2J: Compulsory Compound Transaction for Journaling Filesystem", In Proc. of ACM SIGOPS Asia-Pacific Workshop on Systems (APSys), 2021
2. [**USENIX FAST '19**] Joontaek Oh, Wonjong Lee, Youjip Won, "xF2FS: Supporting Multi-File Transaction in Log-Structured Filesystem", In Proc. of 17th USENIX Conference on File and Storage Technologies (FAST), 2019
3. [**IEEE NVMSA '18**] Joontaek Oh, and Youjip Won. "Embedded DBMS Design for In-Vehicle Information Management." 2018 IEEE 7th Non-Volatile Memory Systems and Applications Symposium (NVMSA). IEEE, 2018.
4. [**USENIX FAST '16**] Jinsoo Yoo, Joontaek Oh, and Youjip Won. "Preserving Bi-Modal Utilization for Segment Cleaning in Modern Log-Structured Filesystem", In Proc. of 14th USENIX Conference on File and Storage Technologies (FAST), 2016

Patents

1. Youjip Won and Joontaek Oh, "On-disk data structure for commit and method of commit with the data structure in log-structured filesystem", KR20220074807A, June 2022
2. Youjip Won and Joontaek Oh, "Method to solve the problem that file operation is blocked because of journal conflict", KR20220074804A, June 2022
3. Youjip Won and Joontaek Oh, "Method and in-memory structure for a file operation processing multiple files", KR20220074806A, June 2022
4. Youjip Won and Joontaek Oh, "Method and apparatus for sending barrier command using dummy IO request", KR20190096838A, Aug. 2019
5. Youjip Won and Joontaek Oh, "Method and apparatus for parallel journaling using conflict page list", KR20190096837A, Aug. 2019

Experience

TA, Programming Structure for EE (EE 209) Mar. 2021 – June 2021
Korea Advanced Institute of Science and Technologies (KAIST) *Daejeon, Korea*

TA, Introduction to Operating Systems (EE 415) Sep. 2020 – Dec. 2020
Korea Advanced Institute of Science and Technologies (KAIST) *Daejeon, Korea*

TA, Commissioned Education of IO Subsystem July 2020 – July 2020
Samsung Advanced Technology Training Institute *Suwon-si, Korea*

TA, Unix Kernel Design (EE 488) Mar. 2020 – June 2020
Korea Advanced Institute of Science and Technologies (KAIST) *Daejeon, Korea*

TA, Introduction to Operating Systems (EE 415) Sep. 2019 – Dec. 2019
Korea Advanced Institute of Science and Technologies (KAIST) *Daejeon, Korea*

TA, Commissioned Education of IO Subsystem June 2019 – June 2019
Samsung Advanced Technology Training Institute *Suwon-si, Korea*

TA, Unix Kernel Design (EE 488) Mar. 2019 – June 2019
Korea Advanced Institute of Science and Technologies (KAIST) *Daejeon, Korea*

TA, System Programming (CSE 4009) Sep. 2018 – Dec. 2018
Hanyang University *Seoul, Korea*

TA, Commissioned Education of IO Subsystem Aug. 2018 – Aug. 2018
Samsung Advanced Technology Training Institute *Suwon-si, Korea*

TA, Operating System (ELE 3021) Mar. 2018 – June 2018
Hanyang University *Seoul, Korea*

TA, System Programming (CSE 4009) Sep. 2017 – Dec. 2017
Hanyang University *Seoul, Korea*

TA, Operating Systems & System Programming (ITE 2032) Sep. 2016 – Dec. 2016
Hanyang University *Seoul, Korea*

TA, Commissioned Education of Operating System Aug. 2016 – Aug. 2016
Samsung Electronics *Suwon-si, Korea*

TA, Introduction to Operating System (ELE 3021) Mar. 2016 – June 2016
Hanyang University *Seoul, Korea*

Projects

High-Performance Exabyte Storage Systems | Samsung Electronics May 2022 – May 2024

SNU-SKH Solution Research Center | SK Hynix Sep. 2019 – Aug. 2023

Future Scalable OS | IITP June 2018 – May 2023

Scalable IO Stack for future storage system | NRF June 2017 – Mar. 2020

System Software for Byte Addressable NVM | KEIT/MOTIE Mar. 2016 – May 2017

Awards and Honors

Best Ph.D. student Award | EE Dept., KAIST — Apr. 2023

Best TA Award | EE Dept., KAIST — Oct. 2020

Best Paper Award | USENIX FAST 2018 — Feb. 2018

Technical Skills

Languages: C/C++, Python, SQL (MySQL, SQLite), R

Developer Tools: gcc/g++, gdb, Git, QEMU, gnuplot, vim, Emacs