

Jonggyu Park

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EDUCATION

Sungkyunkwan University

South Korea

Ph.D. in Dept. of Computer Science and Engineering

Aug. 2014 – Current

- Advisor: Young Ik Eom

Sungkyunkwan University

South Korea

M.S. in Platform Software

Aug. 2014 – Aug. 2016

- Thesis: An Efficient Cleaning Scheme for File Defragmentation on Log-Structured File System
Advisor: Euiseong Seo

Sungkyunkwan University

South Korea

B.S. in Software

Mar. 2011 – Aug. 2014

PUBLICATION

INTERNATIONAL JOURNAL ARTICLES

3. **Jonggyu Park** and Young Ik Eom, "Anti-Aging LFS: Self-Defragmentation With Fragmentation-Aware Cleaning," *IEEE ACCESS* (IF:3.745), Vol. 8, pp. 151474 – 151486, Aug. 2020.
2. **Jonggyu Park** and Young Ik Eom, "URS: User-Based Resource Scheduling for Multi-User Surface Computing Systems," *IEEE Transactions on Consumer Electronics* (IF:2.083), Vol. 65, No. 3, pp. 426–433, Jun. 2019.
1. Inhyeok Kim, Junghan Kim, **Jonggyu Park**, Young Ik Eom, "Software-based Single-node Multi-GPU Systems for Interactive Display Wall," *IEEE Transactions on Consumer Electronics* (IF:1.694), Vol. 63, No. 2, pp. 101–108, Aug. 2017.

INTERNATIONAL CONFERENCE PRESENTATION WITH PUBLICATION

11. **Jonggyu Park** and Young Ik Eom, "FragPicker: A New Defragmentation Tool for Modern Storage Devices," *ACM Symposium on Operating Systems Principles (SOSP 2021)*, to appear. (acceptance rate: 15.5% [54/348])
10. Sanghoon Yoo, **Jonggyu Park**, Taehyoung Lee, and Young Ik Eom, "Optimized Page Ownership Management for Guaranteeing the SLO of Buffered Writes," *IEEE International Conference on Consumer Electronics (ICCE 2021)*, pp. 1–3, Jan. 2021.
9. **Jonggyu Park**, Kwonje Oh, and Young Ik Eom, "Towards Application-level I/O Proportionality with a Weight-aware Page Cache Management," *International Conference on Massive Storage Systems and Technology (MSST 2020)*, pp. 1–11, Oct. 2020. (acceptance rate: 33%)
8. Kwonje Oh, **Jonggyu Park**, and Young Ik Eom, "H-BFQ: Supporting Multi-level Hierarchical Cgroup in BFQ Scheduler," *IEEE International Conference on Big Data and Smart Computing (BigComp 2020)*, pp. 366–369, Feb. 2020.
7. Sungwoo Lee, **Jonggyu Park**, and Young Ik Eom, "Performance Analyses on Logging Policies of Log-structured File System," *IEEE International Conference on Consumer Electronics (ICCE 2019)*, pp. 1–2, Jan. 2019.
6. Kwonje Oh, **Jonggyu Park**, and Young Ik Eom, "Weight-Based Page Cache Management Scheme for Enhancing I/O Proportionality of Cgroups," *IEEE International Conference on Consumer Electronics (ICCE 2019)*, pp. 1–3, Jan. 2019.
5. **Jonggyu Park**, and Young Ik Eom, "NV-Cleaning: An Efficient Segment Cleaning Scheme for a Log-Structured Filesystem with Hybrid Memory Architecture," *International Conference on Ubiquitous Information Management and Communication (IMCOM 2019)*, pp. 610–617, May 2019.

4. Hwan Kim, **Jonggyu Park**, and Young Ik Eom, "User-based Resource Scheduling for Multi-user Surface Computing Systems," *IEEE International Conference on Consumer Electronics (ICCE 2018)*, pp. 1–3, Jan. 2018.
3. **Jonggyu Park**, Inhyeok Kim, and Young Ik Eom, "Grouping Applications Using Geometrical Information of Applications on Tabletop Systems," *Adjunct Publication of ACM Symposium on User Interface Software and Technology (UIST-poster 2017)*, pp. 181–182, Oct. 2017.
2. Kirock Kwon, Dong Hyun Kang, **Jonggyu Park**, and Young Ik Eom, "An Advanced TRIM Command for Extending Lifetime of TLC NAND Flash-based Storage," *IEEE International Conference on Consumer Electronics (ICCE 2017)*, pp. 443–444, Jan. 2017.
1. **Jonggyu Park**, Dong Hyun Kang, and Young Ik Eom, "File Defragmentation Scheme for a Log-Structured File System," *ACM Asia-Pacific Workshop on Systems (APSys 2016)*, pp. 1–7, Aug. 2016. (Acceptance rate: 38% [20/52])

POSTER WITHOUT PUBLICATION

1. Kwonje Oh, **Jonggyu Park**, and Young Ik Eom, "CPM: Container-aware Page Cache Management for Enhancing I/O Proportionality of Cgroups," *IEEE International Conference on Computer Design (ICCD)*, Poster, Nov. 2019.

DOMESTIC (KOREA) JOURNAL ARTICLES

1. **Jonggyu Park**, Dong hyun Kang, Euseong Seo, and Young Ik Eom, "An Efficient Cleaning Scheme for File Defragmentation on Log-Structured File System," *Journal of KIISE*, Vol. 43, No. 6, pp. 627–635, Jun. 2016.

DOMESTIC (KOREA) CONFERENCE

26. **Jonggyu Park** and Young Ik Eom, "Performance Analysis of Multi-Level I/O Caches in Linux Systems," *KIISE Korea Computer Congress (KCC 2021)*, pp. 1361–1362, Jun. 2021.
25. **Jonggyu Park** and Young Ik Eom, "A I/O Scheduler Based on System Call Ordering for Fragmentation," *KIISE Korea Software Congress (KSC 2020)*, pp. 1006–1007, Dec. 2020.
24. Sanghoon Yoo, **Jonggyu Park**, and Young Ik Eom, "Performance Analysis on I/O Throttling of Linux Cgroups," *KIISE Korea Computer Congress (KCC 2020)*, pp. 1230–1231, Jul. 2020.
23. Minho Lee, **Jonggyu Park**, and Young Ik Eom, "Analysis of the Performance of Virtual Disk according to Preallocation Options," *KIISE Korea Computer Congress (KCC 2020)*, pp. 1182–1183, Jul. 2020.
22. **Jonggyu Park** and Young Ik Eom, "Performance Analysis of Container Volume Placement Schemes in LVM Environment," *KIISE Korea Computer Congress (KCC 2020)*, pp. 21–23, Jul. 2020.
21. Kwonje Oh, **Jonggyu Park**, and Young Ik Eom, "Adaptive I/O Polling Method for Enhancing Foreground Application Performance in High-performance SSD-based Systems," *KIISE Korea Computer Congress (KCC 2020)*, pp. 179–181, Dec. 2019.
20. Changho Jung, Taehyung Lee, **Jonggyu Park**, and Young Ik Eom, "Strace-based I/O Characteristics Analysis Tool for Legacy Applications," *KIISE Korea Software Congress (KSC 2019)*, pp. 1744–1745, Dec. 2019.
19. **Jonggyu Park** and Young Ik Eom, "Adaptive Readahead Technique for Improving Non-sequential Read Performance," *KIISE Korea Software Congress (KSC 2019)*, pp. 1160–1162, Dec. 2019.
18. Kwonje Oh, **Jonggyu Park**, and Young Ik Eom, "I/O Performance Proportionality Analysis of BFQ Scheduler in Multi-level Cgroup Hierarchy," *KIISE Korea Software Congress (KSC 2019)*, pp. 1078–1079, Dec. 2019.
17. **Jonggyu Park** and Young Ik Eom, "Analyses on the Performance Interference among Process Groups Depending on their I/O patterns," *KIISE Korea Computer Congress (KCC 2019)*, pp. 1435–1437, Jun. 2019.

16. Kwonje Oh, **Jonggyu Park**, and Young Ik Eom, "Distortion in I/O Performance Proportionality by Using Page Cache," *KIISE Korea Computer Congress (KCC 2019)*, pp. 24–25, Jun. 2019.
15. Hoyoung Lee, Minho Lee, **Jonggyu Park**, and Young Ik Eom, "Analysis of the Performance of Data Migration Between File Systems," *KIISE Korea Computer Congress (KCC 2019)*, pp. 29–30, Jun. 2019.
14. Kwonje Oh, **Jonggyu Park**, and Young Ik Eom, "Page Cache Management Scheme for Improving I/O Proportionality in the Docker Environment," *KIISE Korea Software Congress (KSC 2018)*, pp. 2080–2082, Dec. 2018.
13. **Jonggyu Park** and Young Ik Eom, "Selective Request Merge Scheme for Decreasing Sequential Read Latencies on a Fragmented File System," *KIISE Korea Software Congress (KSC 2018)*, pp. 1360–1361, Dec. 2018.
12. Kwonje Oh, **Jonggyu Park**, and Young Ik Eom, "I/O Performance Analyses of Docker Storage Drivers on Real-world Workloads," *KIISE Korea Computer Congress (KCC 2018)*, pp. 2234–2236, Jun. 2018.
11. Sungwoo Lee, **Jonggyu Park**, and Young Ik Eom, "Analyses on I/O Weight Problems of Cgroups Caused by Linux I/O Optimizations," *KIISE Korea Computer Congress (KCC 2018)*, pp. 2225–2227, Jun. 2018.
10. Yujin Jang, **Jonggyu Park**, and Young Ik Eom, "Analyses on Unfairness of CFQ Scheduler in a Fragmented File System," *KIISE Korea Computer Congress (KCC 2018)*, pp. 1994–1995, Jun. 2018.
9. **Jonggyu Park** and Young Ik Eom, "Analyses on the Overheads of Out-of-order I/O Processing inside SSD," *KIISE Korea Computer Congress (KCC 2018)*, pp. 1569–1571, Jun. 2018.
8. **Jonggyu Park** and Young Ik Eom, "Analyses of File Layout and Sequential Read Performance for the Write Patterns on Log-structured File Systems," *KIISE Korea Software Congress (KSC 2017)*, pp. 1556–1558, Dec. 2017.
7. Yujin Jang, **Jonggyu Park**, and Young Ik Eom, "Analyses of the Readahead Performance Considering the Characteristics of the Storage Devices," *KIISE Korea Computer Congress (KCC 2017)*, pp. 2000–2002, Jun. 2017.
6. Hwan Kim, **Jonggyu Park**, and Young Ik Eom, "Efficient Task Group Creation Scheme in Multi-user Systems," *KIISE Korea Computer Congress (KCC 2017)*, pp. 2018–2020, Jun. 2017.
5. **Jonggyu Park** and Young Ik Eom, "Analyses of the Overheads in Linux Kernel Block Layer Caused by File Fragmentation," *KIISE Korea Computer Congress (KCC 2017)*, pp. 1557–1559, Jun. 2017.
4. Taerok Park, **Jonggyu Park**, and Young Ik Eom, "Analyses on Victim Segment Selection Policies of F2FS," *KIISE Korea Software Congress (KSC 2016)*, pp. 1783–1785, Dec. 2016.
3. Sunghyeob Baek, **Jonggyu Park**, and Young Ik Eom, "Analyses on Reduction of GC Overheads by SSR Mode of F2FS," *KIISE Korea Software Congress (KSC 2016)*, pp. 1780–1782, Dec. 2016.
2. **Jonggyu Park** and Young Ik Eom, "Analyses of Data Hot/Cold Separation Technique of F2FS," *KIISE Korea Software Congress (KSC 2016)*, pp. 1169–1171, Dec. 2016.
1. **Jonggyu Park**, Dong hyun Kang, and Young Ik Eom, "Analyses of the Spatial Efficiency on F2FS Filesystem," *KIISE Korea Computer Congress (KCC 2016)*, pp. 1489–1491, Jun. 2016.

PATENTS

INTERNATIONAL PATENTS

1. Young Ik Eom, **Jonggyu Park**, Inhyeok Kim, "Method for user based application grouping under multi-user environment and table top display apparatus for performing the same," Registration No.: US11048529B2, Jun. 2021.

DOMESTIC (KOREA) PATENTS

5. Young Ik Eom, Inhyeok Kim, **Jonggyu Park**, Kwonje Oh, "Methods for operating storage driver in container environment and storage driver apparatuses," Registration No.: 10-2223141, Feb. 2021.
4. Young Ik Eom, Kwonje Oh, **Jonggyu Park**, "Methods and apparatuses for managing page cache in virtualization service," Registration No.: 10-2144011, Aug. 2020.

3. Young Ik Eom, **Jonggyu Park**, Hwan Kim, "Method for user based resource scheduling under multi-user environment," Registration No.: 10-2044775, Nov. 2019.
2. Young Ik Eom, **Jonggyu Park**, Inhyeok Kim, "Method for user based application grouping under multi-user environment and table top display apparatus for performing the same," Registration No.: 10-1980977, May 2019.
1. Young Ik Eom, Dong Hyun Kang, **Jonggyu Park**, Euseong Seo, Minho Lee, "Segment cleaning method for file system and memory management apparatus thereof," Registration No.: 10-1769916, Aug. 2017.

EXPERIENCE

Purdue University

Jan. 2014 – Feb. 2014

Laboratory Intern

Lafayette, IN

- Robotics programming (Darwin) in C++ - a walking algorithm adapting to the surrounding environment

nTels

Mar. 2011 – Feb. 2013

Undergraduate Program

- Android application development for magazines in 2012
- Recommendation web service development for a magazine in 2011

SK Planet

Jan. 2012 – Feb. 2012

Undergraduate Intern

Seoul, KR

- Web application (javascript, node.js, html, css) development

PROJECTS

Development of UX Platform Software for Supporting Concurrent Multi-users on Large Displays

Student Project Manager

Mar. 2016 – Current

- A next-generation multi-user operating system for large display systems
- System optimizations for multi-user experience (Cgroups, Fragmentation, etc.)

Development of Scalable High Performance Virtualization Framework based on Software Technologies

Student Researcher

Mar. 2017 – Feb. 2021

- Scalable virtualization considering new technologies(NUMA, PCM)
- Kernel optimization for QoS in virtualization

Development of Highly Efficient and Reliable Operating System Technologies for Super-computing Systems

Student Researcher

Mar. 2016 – Oct. 2020

- I/O subsystem optimizations inside Linux Kernel
- Filesystem design for new storage technologies

AWARDS

3. **Best Presentation Award**, KIISE Korea Software Congress (KSC), Dec. 2020.
2. **Best Paper Award**, KIISE Korea Computer Congress (KCC), Jun. 2018.
1. **Best Student Paper Award**, KIISE Korea Computer Congress (KCC), Jun. 2017.