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1 Research Interests

Database Systems, Storage Systems, System Software, Parallel and Distributed Systems

2 Education

Ph.D. Computer Science and Engineering 03/2013 – 02/2019
Advisor: Dr. Beomseok Nam and Dr. Sam H. Noh
Dissertation: Redesigning Transaction Processing Systems for Non-Volatile Memory
Ulsan National Institute of Science and Techonology (UNIST), Ulsan, Korea

B.S. Electrical and Computer Engineering 03/2009– 02/2013
Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea

3 Employment History

1. **Affiliated Assistant Professor** 09/2022 – current
   Department of Smart ICT Convergence, Konkuk University, Seoul, Republic of Korea
2. **Assistant Professor** 03/2022 – current
   Department of Computer Science and Engineering, Konkuk University, Seoul, Republic of Korea
3. **Postdoctoral Associate** 12/2019 – 01/2022
   Department of Electrical and Computer Engineering, Virginia Tech, Blacksburg, VA
3. **Postdoctoral Researcher** 03/2019 – 11/2019
   Convergence Research Institute, College of Software, Sungkyunkwan University, Suwon, Korea

4 Research

4.1 Publication

4.1.1 Conference Publications

1. **RETINA: Cross-layered Key-Value Store for Computational Storage.**
   R. Madhava Krishnan, Naga Sanjana Bikonda, Shashwat Jain, **Wook-Hee Kim**, Vishwanath Maram, Changwoo Min, and Hamid Hadian.
   In Proceedings of *31st IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems* (***IEEE MASCOTS 2023***).

2. **PRISM: Optimizing Key-Value Store for Modern Heterogeneous Storage Devices.**
   Yongju Song, **Wook-Hee Kim**, Sumit Kumar Monga, Changwoo Min, and Young Ik Eom.
   In Proceedings of *28th ACM International Conference on Architectural Support for Programming Languages and Operating Systems* (***ACM ASPLOS 2023***).

3. **TENET: Memory Safe and Fault tolerant Persistent Transactional Memory.**
R. Madhava Krishnan, Diyu Zhou, **Wook-Hee Kim**, Sudarsun Kannan, Sanidhya Kashyap, and Changwoo Min.
In Proceedings of *21st USENIX Conference on File and Storage Technologies* (***USENIX FAST 2023***).

4. **Fireworks: A Fast, Efficient, and Safe Serverless Framework using VM-level pre-JIT Snapshot.**
Wonseok Shin, **Wook-Hee Kim**, and Changwoo Min.
In Proceedings of *17th ACM European Conference on Computer Systems* (***ACM EuroSys 2022***).

5. **PACTree: A High Performance Persistent Range Index Using PAC Guidelines.**
Wook-Hee Kim, R. Madhava Krishnan, Xinwei Fu, Sanidhya Kashyap, and Changwoo Min.
In Proceedings of *the 28th ACM Symposium on Operating Systems Principles* (***ACM SOSP 2021***).

6. **Witcher: Systematic Crash Consistency Testing for Non-Volatile Memory Key-Value Stores.**
Xinwei Fu, **Wook-Hee Kim**, Ajay Paddayuru Shreepathi, Mohannad Ismail, Sunny Wadkar, Dongyoon Lee, and Changwoo Min.
In Proceedings of *the 28th ACM Symposium on Operating Systems Principles* (***ACM SOSP 2021***).

7. **TIPS: Making Volatile Index Structures Persistent with DRAM-NVMM Tiering.**
R. Madhava Krishnan, **Wook-Hee Kim**, Xinwei Fu, Sumit Kumar Monga, Hee Won Lee, Minsung Jang, Ajit Mathew, and Changwoo Min.
In Proceedings of *2021 USENIX Annual Technical Conference* (***USENIX ATC 2021***).

8. **POSEIDON: Safe, Fast and Scalable Persistent Memory Allocator.**
Anthony Demeri, **Wook-Hee Kim**, R. Madhava Krishnan, Jaeho Kim, Mohannad Ismail, and Changwoo Min.
In Proceedings of *the 21st ACM/IFIP International Middleware Conference* (***ACM/IFIP Middleware 2020***).

9. **Doubleheader Logging: Eliminating Journal Write Overhead for Mobile DBMS.**
Sehyeon Oh, **Wook-Hee Kim**, Jihye Seo, Hyeonho Song, Sam H. Noh, and Beomseok Nam.
In Proceedings of *36th IEEE International Conference on Data Engineering* (***IEEE ICDE 2020***).

10. **Endurable Transient Inconsistency in Byte-Addressable Persistent B+-Tree.**
Deukyeon Hwang*, **Wook-Hee Kim***, Youjip Won, and Beomseok Nam.
In Proceedings of *16th USENIX Conference on File and Storage Technologies* (***USENIX FAST 2018***).
*Co-1st author

11. **Failure-Atomic Slotted Paging for Persistent Memory.**
Jihye Seo, **Wook-Hee Kim**, Woongki Baek, Beomseok Nam, and Sam H. Noh.
In Proceedings of *22nd International Conference on Architectural Support for Programming Languages and Operating Systems* (***ACM ASPLOS 2017***).

12. **NVWAL: Exploiting NVRAM in Write-Ahead Logging.**
Wook-Hee Kim, Jinwoong Kim, Woongki Baek, Beomseok Nam, and Youjip Won.
In Proceedings of *21st International Conference on Architectural Support for Programming Languages and Operating Systems* (***ACM ASPLOS 2016***).

13. **WALDIO: Eliminating the Filesystem Journaling in Resolving the Journaling of Journal Anomaly.**
Wongun Lee, Keonwoo Lee, Hankeun Son, **Wook-Hee Kim**, Beomseok Nam, and Youjip Won.
In Proceedings of *2015 USENIX Annual Technical Conference* (***USENIX ATC 2015***).

14. **Resolving Journaling of Journal Anomaly in Android I/O: Multi-Version B-tree with Lazy Split.**
Wook-Hee Kim, Beomseok Nam, Dongil Park, and Youjip Won.
In Proceedings of *12th USENIX Conference on File and Storage Technologies* (***USENIX FAST 2014***).

4.1.2 Workshop Publication

1. **POSEIDON: Safe, Fast and Scalable Persistent Memory Allocator.**
Wook-Hee Kim, Anthony Demeri, R. Madhava Krishnan, Jaeho Kim, Mohannad Ismail, and Changwoo Min.
12th Annual Non-Volatile Memories Workshop (***NVMW 2021***).

2. **Making Volatile Index Structures Persistent using TIPS.**
R. Madhava Krishnan, **Wook-Hee Kim**, Hee Won Lee, Minsung Jang, Sumit Kumar Monga, Ajit Mathew, and Changwoo Min.
12th Annual Non-Volatile Memories Workshop (***NVMW 2021***).

3. **FAST and FAIR B+-Tree for Byte-Addressable Persistent Memory.**
Wook-Hee Kim, Deukyeon Hwang, Jonghyeon Yoo, Youjip Won, and Beomseok Nam.
10th Annual Non-Volatile Memories Workshop (***NVMW 2019***).

4.1.3 Journal Publications

1. **RDMA-based Sampling Port of ARINC-653.**
Jong-Bin Lee, Sang-Jae Kim, **Wook-Hee Kim**, and Hyun-Wook Jin.
IEEE Embedded Systems Letters.
March 2024.

2. **Pivotal B+tree for Byte-Addressable Persistent Memory.**
Jonghyeon Yoo, Hokeun Cha, Wonbae Kim, **Wook-Hee Kim**, Sungsoon Park, and Beomseok Nam.
IEEE Access.
April 2022.

3. **clfB-tree: Cacheline Friendly Persistent B-tree for NVRAM.**
Wook-Hee Kim, Jihye Seo, Jinwoong Kim, and Beomseok Nam.
ACM Transaction on Storage, Special Issue on NVM and Storage.
February 2018.

4.1.4 Non Refereed Publication

1. **WITCHER : Detecting Crash Consistency Bugs in Non-volatile Memory Programs.**
Xinwei Fu, **Wook-Hee Kim**, Ajay Paddayuru Shreepathi, Mohannad Ismail, Sunny Wadkar, Changwoo Min, and Dongyoon Lee.
arXiv:2012.06086.
December 2020.

4.1.5 Posters

1. **clfB-tree: Cache Line Friendly Persistent B-tree.**
Wook-Hee Kim, Jihye Seo, Youjip Won, and Beomseok Nam.
2016 USENIX Annual Technical Conference (***USENIX ATC 2016***).

2. **DEMA: Dynamic Clustering of Spatio-Temporal Dataset to Improve Indexing Performance.**
Wook-Hee Kim, Supervisor: Beomseok Nam.
ACM SIGMOD Undergraduate Research Poster Competition, Athens, Greece, 2011. (***SIGMOD 2011 Undergraduate Research Poster Competition***).

5 Teaching

5.1 Courses Taught

Semester Year	Course Number	Course Title	Enrollment
Spring 2024	BBAB12001 (3178)	Database	88
Spring 2024	BBAB12001 (4656)	Database	28
Spring 2024	BBAB12190 (3193)	Operating System	22
Spring 2024	BBAB55841 (3208)	Graduation Project II	31
Fall 2023	BLDA57572 (3870)	Database	58
Fall 2022	BBAB12022 (3166)	System Programming	58
Fall 2023	BBAB55840 (3184)	Graduation Project I	31
Spring 2023	BBAB12001 (3193)	Database	95
Spring 2023	BBAB12001 (3194)	Database	28
Spring 2023	BBAB12190 (3207)	Operating System	59
Fall 2022	BBAB12022 (3174)	System Programming	91
Fall 2022	BBAB12022 (3176)	System Programming	30
Spring 2022	BBAB12001 (3181)	Database	35
Spring 2022	BBAB12001 (3182)	Database	35

6 Honors and Awards

1. **Postdoctoral Fellowship**
National Research Foundation of Korea (NRF) 2021
2. **PhD Fellowship**
NAVER Corp. 2016

7 Service

7.1 Conference Committee Activities

1. Program Committee, *IEEE Non-Volatile Memory Systems and Applications Symposium (NVMSA).* 2024
2. Organizing Committee, *KIISE Computer System Society Winter Conference.* 2024
3. Program Committee, Organizing Committee, *Operating System Support for Next Generation Large Scale NVRAM (NVRAMOS).* 2022-2024
4. Program Committee, *USENIX Annual Technical Conference (USENIX ATC).* 2023
5. Program Committee, *ACM SIGOPS Asia-Pacific Workshop on Systems (APSys).* 2022

7.2 Journal Reviewing Activities

1. Journal Reviewer, *ACM Transactions on Storage (TOS).* 2020-2024
2. Journal Reviewer, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD).* 2022, 2024
3. Journal Reviewer, *Cluster Computing.* 2024
4. Journal Reviewer, *Journal of Supercomputing.* 2023-2024

5. | Journal Reviewer, *Journal of Parallel and Distributed Computing.* 2022

References

Available upon request