No.9 WenYuan Road,
QiXia District, Nanjing,
Jiangsu, China, 210023

Jun Li

junli@njupt.edu.cn
lijun951111@gmail.com
https://junli95.github.io

Education

Southwest University ***Chongqing, China***
- *Ph.D. in Computer Science (Advisor: Prof. Jianwei Liao)* *Sep 2020 – June 2024*

Southwest University ***Chongqing, China***
- *M.E. in Computer Science (Advisor: Prof. Jianwei Liao)* *Sep 2017 – June 2020*

Nanjing Normal University ***Nanjing, China***
- *B.S. in Educational Technology* *Sep 2013 – June 2017*

Professional Experience

Nanjing University of Posts and Telecommunications ***Nanjing, China***
- *Lecturer (Team Leader: Prof. Jieming Yin)* *Oct 2024 – now*

National Institute of Informatics ***Tokyo, Japan***
- *Visiting Researcher (Advisor: Prof. Yutaka Ishikawa)* *July 2022 – June 2023*

Publications

Conference

- Fan Yang, Toru Koizumi, **Jun Li**, Shu Sugita, Yuriko Yamauchi, Ryota Shioya, Junichiro Kadomoto, Hidetsugu Irie. Register Bridging: A Lightweight Microarchitectural Approach for Skipping Overhead Instructions in Distance-Based ISA Processors. *IEEE International Conference on Computer Design (ICCD '25)*, 2025.
- **Jun Li**, Zhibing Sha, Fan Yang, Xiaofei Xu, Xiaobai Chen, Jieming Yin, Jianwei Liao. FineRR-ZNS: Enabling Fine-Granularity Read Refreshing for ZNS SSDs. *ACM/IEEE Design Automation Conference (DAC '25)*, 2025.
- Xiaobai Chen, Hao Dong, Jiacheng Mei, **Jun Li**, Yifei Tian, Jieming Yin, Fu Xiao. CAMC: a Multi-Chiplet Accelerator with Heterogeneous Memory-Based Computing Architecture for DNN Training. *IEEE International Symposium on Circuits and Systems (ISCAS '25)*, 2025.
- **Jun Li**, Xiaofei Xu, Zhibing Sha, Xiaobai Chen, Jieming Yin, Jianwei Liao. CoupledCB: Eliminating Wasted Pages in Copyback-based Garbage Collection for SSDs. *Design, Automation & Test in Europe Conference & Exhibition (DATE '25)*, 2025.
- Li Cai, Zhibing Sha, **Jun Li**, Jiaojiao Wu, Huanhuan Tian, Zhigang Cai, Jianwei Liao. A Two-level SLC Cache Hierarchy for Hybrid SSDs. *Design, Automation & Test in Europe Conference & Exhibition (DATE '25)*, 2025.
- **Jun Li**, Zhigang Cai, Balazs Gerofi, Yutaka Ishikawa, Jianwei Liao. Page Type-aware Full-sequence Program Scheduling via Reinforcement Learning in High Density SSDs. *International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES '24)* (a.k.a. IEEE TCAD paper), 2024.
- Li Cai, **Jun Li**, Zhibing Sha, Zhigang Cai, Jianwei Liao. PhasedRR: Read Reclaim Scheduling without Page-level Access Counting. *International Conference on Massive Storage Systems and Technology (MSST '24)*, 2024.
- Fan Yang, Zhigang Cai, **Jun Li**, Balazs Gerofi, Francois Trahay, Zhibing Sha, Mingwang Zhao, Jianwei Liao. Adaptive Selection of Parity Chunk Update Methods in RAID-enabled SSDs. *International Conference on Massive Storage Systems and Technology (MSST '24)*, 2024.
- Shuaiwen Yu, Zhibing Sha, Chengyong Tang, Zhigang Cai, Peng Tang, Min Huang, **Jun Li**, Jianwei Liao. Adaptive DRAM Cache Division for Computational Solid-state Drives. *Design, Automation & Test in Europe Conference & Exhibition (DATE '24)*, 2024.

- Zhigang Cai, Chengyong Tang, Minjun Li, Francois Trahay, **Jun Li**, Zhibing Sha, Jiaojiao Wu, Fan Yang, Jianwei Liao. Re-aligning Across-page Requests for Flash-based Solid-state Drives. *International Conference on Parallel Processing (ICPP '23)*, 2023.
- **Jun Li**, Balazs Gerofi, Francois Trahay, Zhigang Cai, Jianwei Liao. Rep-RAID: An Integrated Approach to Optimizing Data Replication and Garbage Collection in RAID-enabled SSDs. *ACM SIGPLAN/SIGBED International Conference on Languages, Compilers, and Tools for Embedded Systems (LCTES '23)*, 2023.
- Zhibing Sha, Jiaojiao Wu, **Jun Li**, Balazs Gerofi, Zhigang Cai, Jianwei Liao. Proactive Stripe Reconstruction to Improve Cache Use Efficiency of SSD-Based RAID Systems. *International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES '23)* (a.k.a. ACM TECS paper), 2023.
- Jianwei Liao, Jiewen Tang, **Jun Li**, Junhao Luo, Chenqi Xiao, Zhigang Cai, Lei Chen. Modeling Retention Errors on Modern 3D-Flash Products. *IEEE International Symposium on Circuits and Systems (ISCAS '23)*, 2023.
- Fan Yang, Chenqi Xiao, **Jun Li**, Zhibing Sha, Zhigang Cai, Jianwei Liao. Out-of-channel data placement for balancing wear-out and I/O workloads in RAID-enabled SSDs. *Design, Automation & Test in Europe Conference & Exhibition (DATE '23)*, 2023.
- Haodong Lin, Zhibing Sha, **Jun Li**, Zhigang Cai, Balazs Gerofi, Yuanquan Shi, Jianwei Liao. DRAM Cache Management with Request Granularity for NAND-based SSDs. *International Conference on Parallel Processing (ICPP '22)*, 2022.
- Jiaojiao Wu, **Jun Li**, Zhibing Sha, Zhigang Cai, and Jianwei Liao. Adaptive Switch on Wear Leveling for Enhancing I/O Latency and Lifetime of High-density SSDs. *International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES '22)* (a.k.a. IEEE TCAD paper), 2022.
- Guodong Peng, **Jun Li**, Mingwang Zhao, Minjun Li, Zhibing Sha, Min Huang, Zhigang Cai. Delaying Large Write Requests to Trade off I/O Performance and Long-Tail Latency in SSDs. *IEEE International Conference on High Performance Computing and Communications (HPCC '22)*, 2022.
- **Jun Li**, Minjun Li, Zhigang Cai, Francois Trahay, Mohamed Wahib, Balazs Gerofi, Zhiming Liu, Min Huang, Jianwei Liao. Intra-page Cache Update in SLC-mode with Partial Programming in High Density SSDs. *International Conference on Parallel Processing (ICPP '21)*, 2021.
- Haodong Lin, **Jun Li**, Zhibing Sha, Zhigang Cai, Jianwei Liao, Yuanquan Shi. A Novel CFLRU-Based Cache Management Approach for NAND-Based SSDs. *IFIP International Conference on Network and Parallel Computing (NPC '21)*, 2021.
- Mingwang Zhao, **Jun Li**, Zhigang Cai, Jianwei Liao, Yuanquan Shi. Block Attribute-aware Data Reallocation to Alleviate Read Disturb in SSDs. *Design, Automation & Test in Europe Conference & Exhibition (DATE '21)*, 2021.
- **Jun Li**, Zhibing Sha, Zhigang Cai, François Trahay, Jianwei Liao. Patch-based Data Management for Dual-copy Buffers in RAID-enabled SSDs. *International Conference on Compilers, Architectures, and Synthesis for Embedded Systems (CASES '20)* (a.k.a. IEEE TCAD paper), 2020. **Best Paper Candidate**
- **Jun Li**, Xiaofei Xu, Xiaoning Peng, Jianwei Liao. Pattern-based Write Scheduling and Read Balance-oriented Wear-leveling for Solid State Drivers. *International Conference on Massive Storage Systems and Technology (MSST '19)*, 2019.

Journal

- Zhibing Sha#, **Jun Li**#, Jiaojiao Wu, Zhigang Cai, Yuanquan Shi, Jianwei Liao. Prefetching Mapping Table Entries to Speed up Address Translation in DRAM-less SSDs. *ACM Transactions on Storage (TOS)*, 2026. (#Co-first)
- Fan Yang, Jiaojiao Wu, Chenqi Xiao, **Jun Li**, Zhibing Sha, Zhigang Cai, Yuanquan Shi, Kanlun Tan, Jianwei Liao. Minimizing overhead of out-of-channel data exchanges to balance wear-outs and I/Os in RAID-enabled SSDs. *ACM Transactions on Architecture and Code Optimization (TACO)*, 2025.
- Zhibing Sha, Shuaiwen Yu, Chengyong Tang, Zhigang Cai, Peng Tang, Min Huang, **Jun Li**, Jianwei Liao. Supports of Data Cache Division for Computational Solid-state Drives. *ACM Transactions on Architecture and Code Optimization (TACO)*, 2025.
- Li Cai, Zhibing Sha, **Jun Li**, Jiaojiao Wu, Huanhuan Tian, Zhigang Cai, Jianwei Liao. Multi-level SLC Cache Architecture for SLC-TLC Hybrid Storage. *IEEE Transactions on Computer-Aided Design of Integrated Cir-*

cuits and Systems (TCAD), 2025.

- **Jun Li**, Zhigang Cai, Balazs Gerofi, Yutaka Ishikawa, Jianwei Liao. Page Type-aware Full-sequence Program Scheduling via Reinforcement Learning in High Density SSDs. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2024. (ESWEEK-TCAD special issue)
- Huanhuan Tian, Jiewen Tang, **Jun Li**, Zhibing Sha, Fan Yang, Zhigang Cai, Jianwei Liao. Modeling Retention Errors of 3D NAND Flash for Optimizing Data Placement. *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, 2024. (CCF-B)
- Jiaojiao Wu, Zhigang Cai, Fan Yang, **Jun Li**, Francois Trahay, Zheng Yang, Chao Wang, Jianwei Liao. Polling Sanitization to Balance I/O Latency and Data Security of High-density SSDs. *ACM Transactions on Storage (TOS)*, 2024.
- Haodong Lin, Junhao Luo, **Jun Li**, Zhibing Sha, Zhigang Cai, Yuanquan Shi, Jianwei Liao. Fast Online Reconstruction for SSD-based RAID-5 Storage Systems. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2023.
- Zhibing Sha, Jiaojiao Wu, **Jun Li**, Balazs Gerofi, Zhigang Cai, Jianwei Liao. Proactive Stripe Reconstruction to Improve Cache Use Efficiency of SSD-Based RAID Systems. *ACM Transactions on Embedded Computing Systems (TECS)*, 2023. (ESWEEK-TECS special issue)
- Zhibing Sha, **Jun Li**, Fengxiang zhang, Min Huang, Zhigang Cai, Francois Trahay, Jianwei Liao. *Visibility Graph-based Cache Management for DRAM Buffer Inside Solid-State Drives. ACM Transactions on Storage (TOS)*, 2023.
- Chengyong Tang, Zhibing Sha, **Jun Li**, Haodong Lin, Lei Chen, Jianwei Liao. Sequential Packaging-Based Cache Eviction for Ssd-Hdd Hybrid Storage. *Journal of Systems Architecture (JSA)*, 2023.
- Jianwei Liao, **Jun Li**, Mingwang Zhao, Zhibing Sha, Zhigang Cai. Read Refresh Scheduling and Data Reallocation against Read Disturb in SSDs. *ACM Transactions on Embedded Computing Systems (TECS)*, 21(2): 1-27, 2022.
- **Jun Li**, Xiaofei Xu, Zhigang Cai, Jianwei Liao, Kenli Li, Balazs Gerofi, Yutaka Ishikawa. Pattern-based Prefetching with Adaptive Cache Management Inside of Solid-State Drives. *ACM Transactions on Storage (TOS)*, 2022.
- Jiaojiao Wu, **Jun Li**, Zhibing Sha, Zhigang Cai, Jianwei Liao. Adaptive Switch on Wear Leveling for Enhancing I/O Latency and Lifetime of High-density SSDs. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2022. (ESWEEK-TCAD special issue)
- Haodong Lin, **Jun Li**, Zhibing Sha, Zhigang Cai, Balazs Gerofi, Yuanquan Shi, Jianwei Liao. Adaptive Management with Request Granularity for DRAM Cache inside NAND-based SSDs. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD*), 2022.
- Zhibing Sha, **Jun Li**, Zhigang Cai, Min Huang, Jianwei Liao, Francois Trahay. Degraded Mode-benefited I/O Scheduling to Ensure I/O Responsiveness in RAID-enabled SSDs. *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, 2022.
- Zhibing Sha, **Jun Li**, Lihao Song, Jiewen Tang, Ming Huang, Zhigang Cai, Lianju Qian, Jianwei Liao, Zhiming Liu. Low I/O Intensity-aware Partial GC Scheduling to Reduce Long-tail Latency in SSDs. *ACM Transactions on Architecture and Code Optimization (TACO)*, 2021.
- **Jun Li**#, Zhibing Sha#, Zhigang Cai, François Trahay, Jianwei Liao. Patch-based Data Management for Dual-copy Buffers in RAID-enabled SSDs. *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, 2020. (ESWEEK-TCAD special issue)
- **Jun Li**, Bowen Huang, Zhibing Sha, Zhigang Cai, Jianwei Liao, Balazs Gerofi, Yutaka Ishikawa. Mitigating Negative Impacts of Read Disturb in SSDs. *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, 2020.

Honors and Awards

- Outstanding Graduate Student of Chongqing, 2024
- National Scholarship for PhD Graduate Student, 2022
- Merit Student of Chongqing, 2022
- Outstanding Master Dissertation of Chongqing, 2021

- DAC Young Fellow, 2021
- Pacemaker to Outstanding Graduate Student of Southwest University, 2021 (Top 10 graduate students)
- National Scholarship for PhD Graduate Student, 2021
- PISEN Scholarship, 2021
- Best Paper Candidate of CASES (part of ESWEEK), 2020 (Top 2.75%=3/109)
- National Scholarship for Master Graduate Student, 2019

Activities

Conference Presentation

- FineRR-ZNS: Enabling Fine-Granularity Read Refreshing for ZNS SSDs. *Design Automation Conference*, San Francisco, CA, USA, Jun. 2025.
- CoupledCB: Eliminating Wasted Pages in Copyback-based Garbage Collection for SSDs. *Design, Automation & Test in Europe Conference & Exhibition*, Lyon, France, Apr. 2025.
- Page Type-aware Full-sequence Program Scheduling via Reinforcement Learning in High Density SSDs. *International Conference on Compilers, Architectures, and Synthesis for Embedded Systems*, Virtual Presentation, Oct. 2024.
- Rep-RAID: An Integrated Approach to Optimizing Data Replication and Garbage Collection in RAID-enabled SSDs. *ACM SIGPLAN/SIGBED International Conference on Languages, Compilers, and Tools for Embedded Systems*, Orlando, Florida, USA, Jun. 2023.
- Intra-page Cache Update in SLC-mode with Partial Programming in High Density SSDs. *International Conference on Parallel Processing*, Virtual Conference, Aug. 2021.
- Patch-based Data Management for Dual-copy Buffers in RAID-enabled SSDs. *International Conference on Compilers, Architectures, and Synthesis for Embedded Systems*, Virtual Conference, Sep. 2020.
- Frequent Access Pattern-based Prefetching Inside of Solid-state Drives. *Design, Automation & Test in Europe Conference & Exhibition*, Virtual Conference, Mar. 2020.
- Pattern-based Write Scheduling and Read Balance-oriented Wear-leveling for Solid State Drivers. *International Conference on Massive Storage Systems and Technology*, Santa Clara, CA, USA, May. 2019.

Conference Service

- Artifact Evaluation Committee, USENIX Conference on File and Storage Technologies (FAST), 2026
- Reviewer, International Symposium on Advanced Parallel Processing Technology (APPT), 2025
- Reviewer, International Conference on Computer Science and Application Engineering (CSAE), 2023

Journal Reviewer

- ACM Transactions on Architecture and Code Optimization (TACO)
- ACM Transactions on Storage (TOS)
- IEEE Transactions on Computers (TC)
- IEEE Transactions on Parallel and Distributed Systems (TPDS)
- IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- IEEE Transactions on Very Large Scale Integration Systems (TVLSI)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Electron Devices (TED)
- IEEE Transactions on Device and Materials Reliability (TDMR)
- IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS)
- Wiley Advanced Science (AS)
- Springer Journal of Computer Science and Technology (JCST)
- Elsevier Journal of Systems Architecture (JSA)
- Elsevier Sustainable Computing (SUSCOM)