YICHEN JIA
Architect Across HW/SW Boundaries

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PROFESSIONAL EXPERIENCE

Senior Performance Engineer
Arm, Inc. | June 2020 – Present | Austin, TX

- Future Arm-based cloud server design and performance modeling
- Investigating and optimizing NVMe over Fabrics (NVMe-oF) and SPDK on Arm's platforms

Engineering Intern
Arm, Inc. | May 2019 - Aug 2019 | May 2018 - Aug 2018 | Austin, TX

- Implementing an UEFI firmware driver to emulate PMEM on Arm-based servers, enabling DAX for EXT4, benchmarking popular key-value stores on the emulated PMEM
- Investigating NVMe and NVMe-over-Fabrics on ARM-based multi-core hardware, identifying bottlenecks of the system, and proposing solutions to them

Software Engineer
Appsoft, Ltd. | July 2013 - June 2014 | Beijing

- Implementing and integrating dozens of operators (statistic models) in the algorithm library in the software. This tool is designed with distributed, real-time and web support

PROJECTS

Investigating NVMe over Fabrics on Arm platforms
Arm, Inc. | June 2020 – Present | Austin, TX

- Bringing up NVMe over RoCEv2 for performance evaluation
- Optimizing NVMe over TCP by improving CPU efficiency
- Profiling SPDK hot functions for future optimization

Tuning and Optimizing RocksDB for Emerging Hardware
Louisiana State University | Sep 2017 – May 2020 | Baton Rouge, LA

- Performance benchmarking for Intel DC flash SSD and Optane SSD
- Understanding and optimizing RocksDB on 3D XPoint based SSD
- Auto-tuning RocksDB for high bandwidth and low latency

Optimizing Key-value Caching System for Flash SSDs
Louisiana State University | Aug 2014 – May 2017 | Baton Rouge, LA

- Applying compression onto flash-based key-value caching system
- Customizing key-value caching system on open-channel SSDs
- Exploring the effect of deduplication on the flash caching system

EDUCATION

Ph.D. in Computer Science
Louisiana State University

📅 Aug 2014 – May 2020

Dissertation: Understanding and Optimizing Flash-based Key-value Systems in Data Centers

B.S. in Mathematics
Jilin University

📅 Aug 2009 – June 2013

Thesis: Seamless Instant Image Cloning Based on Derivative and Intensity Interpolation

SKILLS

Programming Languages: `C/C++` `Python` `Shell` `Makefile`

Source Control: `Git` `Gerrit`

Development Kits: `SPDK` `PMDK`

Operating Systems: `Linux`

PUBLICATIONS

ICDCS'20 Jia *et al. Kill Two Birds with One Stone: Auto-tuning RocksDB for High Bandwidth and Low Latency*

ISPASS'20 Jia et al. *From Flash to 3D XPoint: Performance Bottlenecks and Potentials in RocksDB with Storage Evolution*

MSST'19 Jia et al. *When NVMe over Fabrics Meets Arm: Performance and Implications*

MASCOTS'18 Jia et al. *SlimCache: Exploiting Data Compression Opportunities in Key-Value Caching Systems*

FAST'17 Shen et al. *DIDACache: A Deep Integration of Device and Application for Flash Based Key-Value Caching*

HotStorage'16 Shen et al. *Optimizing Flash-based Key-value Cache Systems*

SERVICES

Peer Review and Referee for
IEEE Transactions on Computers (TC) (1)
IEEE Transactions on Big Data(TBD)(1)
IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems(TCAD)(2)