

ZHICHAO CAO

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RESEARCH INTEREST

Data Infrastructure: key-value stores (RocksDB, LevelDB, HBase); NoSQL databases (GraphDB); data deduplication; backup and archive system; file system; hierarchical storage system; distributed storage system; compute-storage disaggregation; memory disaggregation; AI/ML for data infrastructure; data infrastructure for AI/ML (KV-cache offloading, memory extension, vector databases, and sustainable LLMs);

Storage for big data: cloud storage; object storage; storage systems for big graph; storage system in IoT

New storage devices: Disaggregated Memory (with CXL and RDMA); Non-Volatile Memory (NVM); Shingled Magnetic Recording (SMR); Interlaced Magnetic Recording (SMR); Zoned Namespace SSDs (ZNS SSDs); DNA- and Glass-based storage

EDUCATION

University of Minnesota, Twin-Cities

Ph.D. in Computer Science

Aug. 2013 - Jul. 2020

Advisor: Prof. [David.H.C. Du](#)

Thesis: High-Performance and Cost-Effective Storage Systems for Supporting Big Data Applications [[pdf](#)]

ACM Doctoral Dissertation Award Nomination by UMN Department of Computer Science and Engineering

Tsinghua University

B.E. in Automation (with honor)

Sep. 2009 - Jul. 2013

Advisor: Prof. [Qing Li](#)

EMPLOYMENTS

Assistant Professor	Arizona State University	Jan. 2022 - Present
Research Scientist	Facebook	Oct. 2019 - Dec. 2021
Research Collaborator	Facebook	Sep. 2018 - Sep. 2019
Research Intern	Facebook	Jun. 2018 - Aug. 2018
Research Intern	Veritas	Jun. 2016 - Aug. 2016
Research Intern	Hewlett-Packard (HPE)	Jun. 2015 - Aug. 2015
Research Intern	Hewlett-Packard (HPE)	Jun. 2014 - Aug. 2014
Research Assistant	University of Minnesota, Twin-Cities	Sep. 2013 - Sep. 2018

PUBLICATIONS

- [SOSP'24] Shushu Yi, Shaocong Sun, Li Peng, Yingbo Sun, Ming-Chang Yang, **Zhichao Cao**, Qiao Li, Myoungsoo Jung, Ke Zhou, Jie Zhang. "BIZA: Design of Self-Governing Block-Interface ZNS AFA for Endurance and Performance." *The 30th ACM Symposium on Operating Systems Principles (SOSP)*, November 2024, Pages 313 - 329. [[pdf](#)]
- [TC'24] Yixun Wei, **Zhichao Cao**, David HC Du. "CPI: A Collaborative Partial Indexing Design for Large-Scale Deduplication Systems." *IEEE Transactions on Computers*, November 2024. [[pdf](#)]
- [HotStorage'24] Viraj Thakkar, Madhumitha Sukumar, Jiaxin Dai, Kaushiki Singh, **Zhichao Cao**. "Can Modern LLMs Tune and Configure LSM-based Key-Value Stores?." *16th ACM Workshop on Hot Topics in Storage and File Systems (HotStorage)*, July 2024, Pages 116 - 123. [[pdf](#)] **Best Paper Award!**

26. [**HotStorage'24**] Chongzhuo Yang, Zhang Cao, Chang Guo, Ming Zhao, **Zhichao Cao**. "Can ZNS SSDs be Better Storage Devices for Persistent Cache?." *16th ACM Workshop on Hot Topics in Storage and File Systems (HotStorage)*, July 2024, Pages 55 - 62. [[pdf](#)]
25. [**SIGMOD'24**] Qiaolin Yu, Chang Guo, Jay Zhuang, Viraj Thakkar, Jianguo Wang, **Zhichao Cao**. "CaaS-LSM: Compaction-as-a-Service for LSM-based Key-Value Stores in Storage-Disaggregated Infrastructure." *Proceedings of ACM Conference on Management of Data (SIGMOD)*, Volume 2, Issue 3, Article No.: 124, Pages 1 - 28. [[pdf](#)]
24. [**MSST'24**] Zhang Cao, Chang Guo, Ziyuan Lv, Anand Ananthabhotla, **Zhichao Cao**. "'SAS-Cache: A Semantic-Aware Secondary Cache for LSM-based Key-Value Stores." *The 38th International Conference on Massive Storage Systems and Technology (MSST)*, June 2024. [[pdf](#)]
23. [**MSST'24**] Gaoji Liu, Chongzhuo Yang, Qiaolin Yu, Chang Guo, Wen Xia, **Zhichao Cao**. "Prophet: Optimizing LSM-Based Key-Value Store on ZNS SSDs with File Lifetime Prediction and Compaction Compensation." *The 38th International Conference on Massive Storage Systems and Technology (MSST)*, June 2024. [[pdf](#)]
22. [**DSDE'24**] Chongzhuo Yang, Baolin Feng, Zhang Cao, **Zhichao Cao**. "HyzoneStore: Hybrid Storage with Flexible Logical Interface and Optimized Cache for Zoned Devices." *Proceedings of the 2024 7th International Conference on Data Storage and Data Engineering*, February 2024, Pages 71 - 77. [[pdf](#)]
21. [**ICCD'23**] **Zhichao Cao**, Hao Wen, Fenggang Wu, David H.C. Du. "SMRTS: A Performance and Cost-Effectiveness Optimized SSD-SMR Tiered File System with Data Deduplication." *The 41st IEEE International Conference on Computer Design*, 2023 (Acceptance rate: 28%). [[pdf](#)]
20. [**ICCD'23**] Hao Wen, **Zhichao Cao**, Bingzhe Li, David Du, Ayman Abouelwafa, Doug Voigt, Shiyong Liu, Jim Diehl and Fenggang Wu. "K8sES: Optimizing Kubernetes with Enhanced Storage Service-Level Objectives." *The 41st IEEE International Conference on Computer Design*, 2023 (Acceptance rate: 28%). [[pdf](#)]
19. [**ICCD'22**] Jingsong Yuan, Xiangyu Zou, Han Xu, **Zhichao Cao**, Shiyi Li, Wen Xia, Peng Wang and Li Chen. "A Focused Garbage Collection Approach for Primary Deduplicated Storage with Low Memory Overhead." *The 40th IEEE International Conference on Computer Design*, 2022. [[pdf](#)]
18. [**TOS'22**] **Zhichao Cao**, Huibing Dong, Yixun Wei, Shiyong Liu, and David H.C. Du. "IS-HBase: An In-Storage Computing Optimized HBase with I/O Offloading and Self-Adaptive Caching in Compute-Storage Disaggregated Infrastructure." *ACM Transaction on Storage*, Volume 18, Issue 2, May 2022. [[pdf](#)]
17. [**TOS'22**] Hiwot Tadese Kassa, Jason Akers, Mrinmoy Ghosh, **Zhichao Cao**, Vaibhav Gogte, Ronald Dreslinski. "Power-optimized Deployment of Key-value Stores Using Storage Class Memory." *ACM Transaction on Storage*, Volume 18, Issue 2, May 2022. [[pdf](#)]
16. [**TOS'22**] Xiongzi Ge **Zhichao Cao**, David H.C. Du, Pradeep Ganesan, Dennis Hahn. "HintStor: A Framework to Study I/O Hints in Heterogeneous Storage." *ACM Transaction on Storage*, Volume 18, Issue 2, May 2022. [[pdf](#)]
15. [**ATC'21**] Hiwot Tadese Kassa, Jason Akers, Mrinmoy Ghosh, **Zhichao Cao**, Vaibhav Gogte, Ronald Dreslinski. "Improving Performance of Flash Based Key-Value Stores Using Storage Class Memory as a Volatile Memory Extension." *2021 USENIX Annual Technical Conference*, 2021 (Acceptance rate: 64/341=23%). [[pdf](#)]
14. [**FAST'20**] **Zhichao Cao**, Siying Dong, Sagar Vemuri, and David H.C. Du.. "Characterizing, Modeling, and Benchmarking RocksDB Key-Value Workloads at Facebook." *18th USENIX Conference on File and Storage Technologies*, 2020 (Acceptance rate: 23/138=17% as Full Paper). [[pdf](#)]
13. [**TC'20**] Fenggang Wu, Bingzhe Li, Baoquan Zhang, **Zhichao Cao**, Jim Diehl, Hao Wen, David HC Du. "Track-lace: Data management for interlaced magnetic recording." *IEEE Transactions on Computers*, Volume: 70 Issue: 3, Page(s): 347 - 358, April 2020. [[pdf](#)]
12. [**FAST'19**] **Zhichao Cao**, Shiyong Liu, Fenggang Wu, Guohua Wang, Bingzhe Li, and David H.C. Du. "Sliding

- Look-Back Window Assisted Data Chunk Rewriting for Improving Deduplication Restore Performance.” *17th USENIX Conference on File and Storage Technologies*, 2019 (Acceptance rate: 26/145=18% as Full Paper). [\[pdf\]](#)
11. **[TOS’19] Zhichao Cao**, Hao Wen, Xiongzi Ge, and David H.C. Du. “TDDFS: A Tier-aware Data Deduplication based File System.” *ACM Transaction on Storage*, 2019. [\[pdf\]](#)
 10. **[HotStorage’19]** Fenggang Wu, Bingzhe Li, **Zhichao Cao**, Baoquan Zhang, Minghong Yang, Hao Wen, and David H.C. Du. “ZoneAlloy: Elastic Data and Space Management for Hybrid SMR Drives.” *11th USENIX Workshop on Hot Topics in Storage and File Systems*, 2019. [\[pdf\]](#)
 9. **[FAST’18] Zhichao Cao**, Hao Wen, Fenggang Wu, and David H.C. Du. “ALACC: Accelerating Restore Performance of Data Deduplication Systems Using Adaptive Look Ahead Window Assisted Chunk Caching.” *16th USENIX Conference on File and Storage Technologies*, 2018 (Acceptance rate: 23/139=17% as Full Paper). [\[pdf\]](#)
 8. **[HotStorage’18]** Fenggang Wu, Baoquan Zhang, **Zhichao Cao**, Hao Wen, Bingzhe Li, Jim Diehl, Guohua Wang, and David H.C. Du. “Data Management Design for Interlaced Magnetic Recording.” *10th USENIX Workshop on Hot Topics in Storage and File Systems*, 2018. [\[pdf\]](#)
 7. **[MASCOTS’18]** Hao Wen, **Zhichao Cao**, Yang Zhang, Xiang Cao, Ziqi Fan, Doug Voigt, and David H.C. Du. “JoiNS: Meeting Latency SLO with Integrated Control for Networked Storage.” *IEEE 26th International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems*, 2018. [\[pdf\]](#)
 6. **[BIGCOM’18]** Shiyong Liu, **Zhichao Cao**, Zhongwen Guo , Guohua Wang , Xupeng Wang , Zhijin Qiu , and Xukun Qin. “NVMTFS: A Non-Volatile Memory Adaptive File System for Tiered Storage System.” *IEEE 4th International Conference on Big Data Computing and Communications*, 2018. [\[Website\]](#)
 5. **[OTM’16]** Qing Li, Dachuan Li, and **Zhichao Cao**. “Service Oriented Collaborative Simulation in Concept and Design Stages: Framework and Enabling Technologies.” *OTM Confederated International Conferences” On the Move to Meaningful Internet Systems”*. Springer, 2016. [\[Website\]](#)
 4. **[EIS’15]** Qing Li, Zeyuan Wang, **Zhichao Cao**, Ruiyang Du, and Hao Luo. “Process and data fragmentation-oriented enterprise network integration with collaboration modeling and collaboration agents.” *Enterprise Information Systems*, 2015. [\[Website\]](#)
 3. **[CI’13]** Qing Li, Zeyuan Wang, Weihua Li, **Zhichao Cao**, Ruiyang Du, and Hao Luo. “Model-based services convergence and multi-clouds integration.” *Computers in Industry*, 2013. [\[Website\]](#)
 2. **[CCIS’12] Zhichao Cao**, Qing Li, Zeyuan Wang, Weihua Li, Jun Li, and Ruiyang Du. “A cloud computing based framework of group-enterprise service integration and sharing.” *IEEE 2nd International Conference on Cloud Computing and Intelligence Systems*, 2012. [\[Website\]](#)
 1. **[CSSS’12]** Zeyuan Wang, Qing Li, **Zhichao Cao**, Weihua Li, Jun Li, and Ruiyang Du. “A model-based deployment framework of integrated public cloud service.” *2012 International Conference on Computer Science and Service System*, 2012. [\[Website\]](#)

ACADEMIC POSTERS AND WORK-IN-PROGRESS

12. **[FAST’24]** Madhumitha Sukumar, Jiaxin Dai, Kaushiki Singh, Vikriti Lokegaonkar, Viraj Thakkar, **Zhichao Cao**. “LLM-assisted Automatic-Configuration and Tuning Framework for LSM-based Key-Value Stores.” *22th USENIX Conference on File and Storage Technologies*, 2024.
11. **[MSST’24]** Kritshekhar Jha, Alexander Sutula, Ian Mcdonough, Yongfeng Wang, Lillian Seebold, **Zhichao Cao**, Ming Zhao. “ZNSCache: Zoned Namespace (ZNS) SSD based Caching.” *The 38th International Conference on Massive Storage Systems and Technology*, 2024.
10. **[FAST’23]** Kritshekhar Jha, Ian Mcdonough, Alexander Sutula, **Zhichao Cao**, and Ming Zhao.. “DM-ZCache: Zoned Namespace (ZNS) SSD based Caching.” *21th USENIX Conference on File and Storage Technologies*, 2023.

9. [FAST'23] Jinghuan Yu, Yixun Wei, **Zhichao Cao**, David H.C. Du, and Chun Jason Xue.. "Level-based Shard Migration in Distributed LSM KV Store." *21th USENIX Conference on File and Storage Technologies*, 2023.
8. [FAST'20] **Zhichao Cao**, Siying Dong, Sagar Vemuri, and David H.C. Du.. "Characterizing, Modeling, and Benchmarking RocksDB Key-Value Workloads at Facebook." *18th USENIX Conference on File and Storage Technologies*, 2020.
7. [FAST'19] **Zhichao Cao**, Shiyong Liu, Fenggang Wu, Guohua Wang, Bingzhe Li, and David H.C. Du. "Sliding Look-Back Window Assisted Data Chunk Rewriting for Improving Deduplication Restore Performance." *17th USENIX Conference on File and Storage Technologies*, 2019.
6. [FAST'19] Fenggang Wu, **Zhichao Cao**, Baoquan Zhang, and David H.C. Du. "Wear-out Aware LSM System for QLC SSDs." *17th USENIX Conference on File and Storage Technologies*, 2019.
5. [FAST'19] Fenggang Wu, Baoquan Zhang, **Zhichao Cao**, and David H.C. Du. "NVLSM-Tree: A Design of Log-Structured Merge Tree for Hybrid Volatile/Non-Volatile Memory System." *17th USENIX Conference on File and Storage Technologies*, 2019.
4. [FAST'18] **Zhichao Cao**, Hao Wen, Fenggang Wu, and David H.C. Du. "ALACC: Accelerating Restore Performance of Data Deduplication Systems Using Adaptive Look Ahead Window Assisted Chunk Caching.." *16th USENIX Conference on File and Storage Technologies*, 2018.
3. [FAST'17] **Zhichao Cao**, Fenggang Wu, Hao Wen, and David H.C. Du. "Optismr: Restore-Performance Optimization for Deduplication Systems Using SMR Drives." *16th USENIX Conference on File and Storage Technologies*, 2017.
2. [FAST'17] Hao Wen, **Zhichao Cao**, Yang Zhang, and David H.C. Du. "Guaranteed QoS with Integrated Control for Networked Storage." *16th USENIX Conference on File and Storage Technologies*, 2017.
1. [SoCC'14] Xiongzi Ge, **Zhichao Cao**, and David H.C. Du. "OneStore: Integrating Local and Cloud Storage with Access Hints." *ACM Symposium on Cloud Computing*, 2014.

HONORS, AWARDS, PATENT, AND GRANTS

- NSF CAREER Award 2025
- NSF CNS CSR Small Core Grant 2024
- HotStorage 2024 Best Paper Award 2024
- VLDB 2024 Distinguished Reviewer Award 2024
- OpenAI Researcher Access Program Credit Award 2024
- Indonesia-US Research Collaboration Award 2024
- Indonesia-US Research Collaboration Award 2023
- Google Cloud Research Credit Award 2022
- FAST Travel Grant 2019
- U.S. Patent "System and Methods for Performing Live Migrations of Software Containers", 15/261,596[P]. 2018
- FAST Travel Grant 2017
- Best Innovation Pod among all intern teams of Veritas 2016

TEACHING

CSE 511 (graduate-level)
Data Processing at Scale

Spring 2022, Spring 2023, Fall 2024
Instructor

CSE 330 (undergraduate-level)
Operating Systems

Fall 2022, Fall 2023, Spring 2024
Instructor

CSCI 5980 (graduate-level)
Big Data and Storage System

Fall 2018
Guest lecture

CSCI 2021 (undergraduate-level)
Machine Architecture and Organization

Sprint 2014
Teaching assistant

CURRENT STUDENTS SUPERVISED

Chang Guo	Ph.D. Student	August. 2022 - Present
Viraj Thakkar	Ph.D. Student	August. 2023 - Present
Qi Lin	Ph.D. Student	May. 2024 - Present
Zhenyu Zhang	Ph.D. Student	August. 2024 - Present

THESIS DEFENSE COMMITTEE

- Ph.D. thesis defense committee: Yiming Wei (2024)
- Master thesis defense committee: Sungho Hong (2022), Viraj Thakkar (2023), Manimozhi Sekar (2024), Vrutik Halani (2024), Nicholas Seah (2024)

NATIONAL SERVICE

- NSF Panelist: 2024

ACADEMIC SERVICES

- Program Committee of USENIX FAST 2025, 2026
- Program Committee of ACM SIGMOD 2023, 2024 (demo track), 2025, 2026
- Program Committee of VLDB 2024, 2025
- Program Committee of USENIX ATC 2024, 2025
- Program Committee of IEEE ICDCS 2025
- Program Committee of ACM HotStorage 2023, 2024, 2025
- Mentorship Program Co-Chair of USENIX FAST 2025
- Publicity Co-Chair of ACM HotStorage 2025
- Session Chair of USENIX ATC 2024
- Session Chair of ACM HoStorage 2024
- Publicity Co-Chair of MSST 2024
- Program Committee of ACM SYSTOR 2024
- Session Chair of IEEE ICCD 2023
- Program Committee of ICPP 2023
- Session Chair of ACM SIGMOD 2023
- Proceedings Co-Chair of ACM SIGMOD 2023
- Virtual Chair of ACM HotStorage 2022

- Program Committee of IEEE NAS 2022
- Program Committee of ACM APSys 2022
- Reviewer of ACM Transaction on Storage (TOS) 2022, 2023, 2024
- Reviewer of IEEE Transactions on Computers (TC) 2024
- Reviewer of ACM Transactions on Database Systems (TODS) 2024
- Reviewer of ACM Transactions on Architecture and Code Optimization (TACO) 2024
- Reviewer of IEEE Micro 2024
- Reviewer of IEEE/ACM Transactions on Networking 2024
- Reviewer of IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD) 2023
- Reviewer of IEEE Transactions on Cloud Computing 2022
- Reviewer of IEEE Transactions on Dependable and Secure Computing 2021
- Reviewer of IEEE Access 2021
- Reviewer of IEEE Intelligent Systems 2021
- Reviewer of The International Journal for the Computer Communications 2021
- Reviewer of The International Journal for the Future Generation Computer Systems 2020
- Volunteer of International Conference on Parallel Processing (ICPP'14)

UNIVERSITY & DEPARTMENT SERVICES

Ph.D. Admission Committee	2022 - Present
DSAE Graduate Program Committee	2022 - Present
Faculty Search Committee	2022, 2023, 2024
DSAE Graduate Program Committee Chair	2022 - 2024

INVITED TALKS

12. “Decoupled-RocksDB and Its Auto-Tuning with Morden LLMs”, *RocksDB End-of-Year Meetup Menlo Park, Invited Talk*, CA, 2024.
11. “Storage and Machine Learning - What can we learn from each other?”, *16th ACM Workshop on Hot Topics in Storage and File Systems Santa Clara, Panelist*, CA, 2024.
10. “Can ZNS SSDs be Better Storage Devices for Persistent Cache?”, *16th ACM Workshop on Hot Topics in Storage and File Systems HotStorage'24*, CA, 2024.
9. “LSM-based Key-Value Stores in AI/ML Era”, *University of Chicago Chicago, Invited Talk*, IL, 2024.
8. “SMRTS: A Performance and Cost-Effectiveness Optimized SSD-SMR Tiered File System with Data Deduplication”, *The 41st IEEE International Conference on Computer Design ICCD'23*, DC, 2023.
7. “Optimizing LSM-based Key-Value Stores for Disaggregated Infrastructure and New Storage Devices”, *UC Santa Cruz, Invited CSE Seminar*, CA, 2023.
6. “RocksDB Secondary Cache, Checksum, and Optimizations”, *Nebula Graph Meetup, Invited Talk*, CA, 2021.
5. “Characterizing, Modeling, and Benchmarking RocksDB Key-Value Workloads at Facebook”, *18th USENIX Conference on File and Storage Technologies [FAST'20]*, CA, 2020.
4. “RocksDB Workload Analyzing and Benchmarking”, *RocksDB Community Meetup, Invited Talk*, CA, 2020.

3. “Sliding Look-Back Window Assisted Data Chunk Rewriting for Improving Deduplication Restore Performance”, *17th USENIX Conference on File and Storage Technologies [FAST’19]*, MA, 2019.
2. “ALACC: Accelerating Restore Performance of Data Deduplication Systems Using Adaptive Look Ahead Window Assisted Chunk Caching”, *16th USENIX Conference on File and Storage Technologies [FAST’18]*, CA, 2018.
1. “Optismr: Restore-Performance Optimization for Deduplication Systems Using SMR Drives”, *15th USENIX Conference on File and Storage Technologies [FAST’17]*, CA, 2017.

RESEARCH COOPERATION WITH INDUSTRIES

Western Digital <i>Project: System design for Zoned Namespace SSDs</i>	Feb. 2022 - Present PI
Facebook <i>Project: RocksDB Workload Characterization and Benchmarking</i>	Sep. 2018 - Sep. 2019 PI
Hewlett-Packard (HPE) <i>Project: Integrating SDS with SDN</i>	Sep. 2016 - Jun. 2018 <i>with Hao Wen</i>
Veritas <i>Project: Global data allocation and migration project</i>	Sep. 2016 - Jun. 2017 co-PI with David H.C Du
Symantec <i>Project: Federated and Distributed Storage System</i>	Sep. 2015 - Jun. 2016 co-PI with David H.C Du
NetApp <i>Project: Integrating Local Storage and Cloud with Access Hints</i>	Sep. 2013 - Jun. 2015 co-PI with David H.C Du

INDUSTRIAL EXPERIENCES

Facebook <i>Project: Database and RocksDB Research</i>	Oct. 2019 - Dec. 2021 Research Scientist
<ul style="list-style-type: none"> • RocksDB key value store performance and data integrity research; • RocksDB data protection and workloads exploration; • New storage devices for key-value stores; • Research of integrating AI/ML models with RocksDB for performance improvement. 	
Facebook <i>Project: RocksDB Workload Characterization and Benchmarking</i>	Sep. 2018 - Sep. 2019 Research Collaborator
<ul style="list-style-type: none"> • Key value store workload collecting in large scale social graph, storage system, and AI platform • Enhance RocksDB tracing tool and analyzing tool and workload characterization; • Propose and develop the Key-value store workload characterization methodologies. 	
Facebook <i>Project: RocksDB Query Workload Resarch</i>	Jun. 2018 - Aug. 2018 Research Intern
<ul style="list-style-type: none"> • Designed and implemented the RocksDB query level trace analyzing tool; • Deploying the trace collecting tool in two different shadow services and delivered real-world workload analyzing and characterization; • Proposed and implemented the RocksDB synthetic workload generator. 	
Veritas <i>Project: Docker Container Live Migration</i>	Jun. 2016 - Aug. 2016 Research Intern
<ul style="list-style-type: none"> • Designed and implemented incremental container checkpoint and restore in RunC/Docker; 	

- Implemented live migration local plugin and UI with automatic support;
- Designed and implemented machine learning based container live migration algorithm.

Hewlett-Packard (HPE)

Jun. 2015 - Aug. 2015

Project: : Light Weight Cloud Gateway File System Development

Research Intern

- Designed and implemented data deduplication module for the file system;
- Implemented LRU cache with cache auto shrinking to optimize file system performance;
- Implemented multi-thread infrastructure (thread pool and thread management).

Hewlett-Packard (HPE)

Jun. 2014 - Aug. 2014

Project: Source Deduplication Gateway for HP Catalyst

Research Intern

- Designed and implemented the light-weight gateway with source deduplication;
- Designed and developed the WSGI based RESTful request gateway for HP Catalyst to support Openstack and replace Swift.