Yu Hua

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Brief Biography

Dr.Yu Hua was Postdoc Research Associate in McGill University in 2009 and Postdoc Research Fellow in University of Nebraska-Lincoln in 2010-2011. He obtained his B.E and Ph.D degrees from Wuhan University, respectively in 2001 and 2005. His research interests include file systems, cloud storage systems, non-volatile memory, big data analytics, machine learning, etc. His papers have been published in major conferences and journals, including OSDI, FAST, MICRO, USENIX ATC, ACM SoCC, SC, HPDC, ICDCS, IPDPS. He serves for multiple international conferences, including ASPLOS (ERC), SOSP (SRC&Poster), USENIX ATC, SC, SoCC, ICS (ERC), RTSS, ICDCS, INFOCOM, IPDPS. He is the distinguished member of CCF, senior member of ACM and IEEE, and the member of USENIX. He has been appointed as the Distinguished Speaker of ACM and CCF. His Semi-hierarchical Semantic-aware Storage releases source codes of main components in GitHub for public use.

Selected Publications

1. [**OSDI**] Pengfei Zuo, Yu Hua, Jie Wu, "Write-Optimized and High-Performance Hashing Index Scheme for Persistent Memory", Proceedings of the 13th USENIX Symposium on Operating Systems Design and Implementation (OSDI), 2018. (Acceptance rate: 47/264=17.8%)
2. [**MICRO**] Pengfei Zuo, Yu Hua, Ming Zhao, Wen Zhou, Yuncheng Guo, "Improving the Performance and Endurance of Encrypted Non-volatile Main Memory through Deduplicating Writes", Proceedings of the 51st IEEE/ACM International Symposium on Microarchitecture (MICRO), 2018. (Acceptance rate: 74/351=21%)
3. [**USENIX ATC**] Yuanyuan Sun, Yu Hua, Song Jiang, Qiuyu Li, Shunde Cao, Pengfei Zuo, "SmartCuckoo: A Fast and Cost-Efficient Hashing Index Scheme for Cloud Storage Systems", Proceedings of USENIX Annual Technical Conference (USENIX ATC), July 2017, pages: 553-566. (Acceptance rate: 60/283=21%).
4. [**SoCC**] Yuanyuan Sun, Yu Hua, Xue Liu, Shunde Cao, Pengfei Zuo, "DLSH: A Distribution-aware LSH Scheme for Approximate Nearest Neighbor Query in Cloud Computing", Proceedings of ACM Symposium on Cloud Computing (SoCC), 2017, pages: 242-255. (Acceptance rate: 48/203=23.6%).
5. [**USENIX ATC**] Wen Xia, Yukun Zhou, Hong Jiang, Dan Feng, Yu Hua, Yuchong Hu, Yucheng Zhang, Qing Liu, "FastCDC: a Fast and Efficient Content-Defined Chunking Approach for Data Deduplication", Proceedings of USENIX Annual Technical Conference (USENIX ATC), June 2016, pages: 101-114. (Acceptance rate: 47/248=19%)
6. [**FAST**] Min Fu, Dan Feng, Yu Hua, Xubin He, Zuoning Chen, Wen Xia, Yucheng Zhang, Yujuan Tan, "Design Tradeoffs for Data Deduplication Performance in Backup Workloads",

Proceedings of the 13th USENIX Conference on File and Storage Technologies (FAST), February 2015, pages:331-344. (Acceptance rate: 28/130=21.5%)

7. [**USENIX ATC**] Min Fu, Dan Feng, Yu Hua, Xubin He, Zuoning Chen, Wen Xia, Fangting Huang, Qing Liu, "Accelerating Restore and Garbage Collection in Deduplication-based Backup Systems via Exploiting Historical Information", Proceedings of USENIX Annual Technical Conference (USENIX ATC), June 2014, pages: 181-192. (Acceptance rate: 36/241=14.9%).
8. [**SC**] Yu Hua, Hong Jiang, Dan Feng, "FAST: Near Real-time Searchable Data Analytics for the Cloud", Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC), November 2014, Pages: 754-765. (Acceptance rate: 82/394=20.8%)
9. [**USENIX ATC**] Wen Xia, Hong Jiang, Dan Feng, Yu Hua, "SiLo: A Similarity-Locality based Near-Exact Deduplication Scheme with Low RAM Overhead and High Throughput, Proceedings of USENIX Annual Technical Conference (USENIX ATC), June 2011. (Acceptance rate: 15%)
10. [**SC**] Yu Hua, Hong Jiang, Yifeng Zhu, Dan Feng, Lei Tian, "SmartStore: A New Metadata Organization Paradigm with Semantic-Awareness for Next-Generation File Systems", Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis (SC), November 2009. (Acceptance rate: 22.6%)

Full Paper List:

Conferences:

1. Xiaoyi Zhang, Dan Feng, **Yu Hua**, Jianxi Chen, Mandi Fu, "A Write-efficient and Consistent Hashing Scheme for Non-Volatile Memory", Proceedings of the 47th International Conference on Parallel Processing (**ICPP**), August 2018.
2. Pengfei Zuo, **Yu Hua**, "SecPM: a Secure and Persistent Memory System for Non-volatile Memory", Proceedings of the 10th USENIX Workshop on Hot Topics in Storage and File Systems (**USENIX HotStorage**), July 2018.
3. Yi Su, Dan Feng, **Yu Hua**, Zhan Shi, Tingwei Zhu, "NetRS: Cutting Response Latency of Distributed Key-Value Store with In-Network Replica Selection", Proceedings of the 38th International Conference on Distributed Computing Systems (**ICDCS**), 2018 (main research program, Acceptance rate: 78/378=20.6%).
4. Pengfei Zuo, **Yu Hua**, Cong Wang, Wen Xia, Shunde Cao, Yukun Zhou, Yuanyuan Sun, "Mitigating Traffic-based Side Channel Attacks in Bandwidth-efficient Cloud Storage", Proceedings of the 32nd IEEE International Parallel and Distributed Processing Symposium (**IPDPS**), 2018 (Acceptance rate: 113/461=24.5%).
5. Yuncheng Guo, **Yu Hua**, Pengfei Zuo, "DFPC: A Dynamic Frequent Pattern Compression Scheme in NVM-based Main Memory", Proceedings of the 21st Design Automation and Test in Europe (**DATE**), 2018, pages: 1634-1639. (Acceptance rate: 185/766=24%)
6. Jie Xu, Dan Feng, **Yu Hua**, Wei Tong, Jingning Liu, Chunyan Li, Zheng Li, "An Efficient PCM-based Main Memory System via Exploiting Fine-grained Dirtiness of Cachelines", Proceedings of the 21st Design Automation and Test in Europe (**DATE**), 2018, pages: 1628-1633.(Acceptance rate: 185/766=24%)

7. Jie Xu, Dan Feng, **Yu Hua**, Wei Tong, Jingning Liu, Chunyan Li, "Extending the Lifetime of NVMs with Compression", Proceedings of the 21st Design Automation and Test in Europe (**DATE**), 2018, pages: 1616-1621.(Acceptance rate: 185/766=24%)
8. Zheng Li, Fang Wang, Dan Feng, **Yu Hua**, Jingning Liu, Wei Tong, "MaxPB : Accelerating PCM Write by Maximizing the Power Budget Utilization", Invited presentation at the International Conference on High Performance and Embedded Architecture and Compilation (**HiPEAC**), 2017, and ACM Transactions on Architecture and Code Optimization (TACO), Vol.13, No.4, December 2016, pages:46-71.
9. Jie Wu, **Yu Hua**, Pengfei Zuo, Yuanyuan Sun, "A Cost-efficient Rewriting Scheme to Improve Restore Performance in Deduplication Systems", Proceedings of the 33rd International Conference on Massive Storage Systems and Technology (**MSST**), 2017. (Full paper)
10. Pengfei Zuo, **Yu Hua**, "A Write-friendly Hashing Scheme for Non-volatile Memory Systems", Proceedings of the 33rd International Conference on Massive Storage Systems and Technology (**MSST**), 2017. (Full paper)
11. Chu Li, Dan Feng, **Yu Hua**, Fang Wang, Chuntao Jiang, Wei Zhou, "A Log-aware Synergized Scheme for Page-level FTL Design", Proceedings of the 20th Design Automation and Test in Europe (**DATE**), 2017, pages: 1080-1085.
12. Fangting Huang, Dan Feng, **Yu Hua**, Wen Zhou, "A Wear-Leveling-Aware Counter Mode for Data Encryption in Non-Volatile Memories", Proceedings of the 20th Design Automation and Test in Europe (**DATE**), 2017, pages: 910-913.
13. Landu Jiang, **Yu Hua**, Chen Ma, Xue Liu, "SunChase: Energy-Efficient Route Planning for Solar Powered EVs", Proceedings of the 37th International Conference on Distributed Computing Systems (**ICDCS**), 2017, pages: 383-393. (Acceptance rate: 89/531=16.8%)
14. Pengfei Zuo, **Yu Hua**, Xue Liu, Dan Feng, Wen Xia, Shunde Cao, Jie Wu, Yuanyuan Sun, Yuncheng Guo, "BEES: Bandwidth- and Energy- Efficient Image Sharing for Real-time Situation Awareness", Proceedings of the 37th International Conference on Distributed Computing Systems (**ICDCS**), 2017, pages: 1510-1520.
15. Xiaoyi Zhang, Dan Feng, **Yu Hua** and Jianxi Chen, "A Cost-efficient NVM-based Journaling Scheme for File Systems", Proceedings of the 35th IEEE International Conference on Computer Design (**ICCD**), 2017, pages: 57-64.
16. Jie Xu, Dan Feng, **Yu Hua**, Wei Tong, Jingning Liu, Chunyan Li and Wen Zhou, "Improving Performance of TLC RRAM with Compression-Ratio-Aware Data Encoding", Proceedings of the 35th IEEE International Conference on Computer Design (**ICCD**), 2017, pages: 573-580.
17. Chunguang Li, Dan Feng, **Yu Hua**, Wen Xia, Leihua Qin, Yue Huang, Yukun Zhou, "BAC: Bandwidth-Aware Compression for Efficient Live Migration of Virtual Machines", Proceedings of the 36th IEEE International Conference on Computer Communications (**INFOCOM**), 2017, pages: 55-63. (Acceptance rate: 292/1395=21%)
18. Yongli Cheng, Hong Jiang, Fang Wang, **Yu Hua**, Dan Feng, "BlitzG: Exploiting High-Bandwidth Networks for Fast Graph Processing", Proceedings of the 36th IEEE International Conference on Computer Communications (**INFOCOM**), 2017, pages: 2340-2348. (Acceptance rate: 292/1395=21%)

19. Yi Su, Dan Feng, **Yu Hua**, Zhan Shi, "Predicting Response Latency Percentiles for Cloud Object Storage Systems", Proceedings of the 46th International Conference on Parallel Processing (**ICPP**), 2017.
20. Weibin Xie, Fang Wang, **Yu Hua**, Dan Feng, Yuchong Hu, Chu Li, "A Cost-efficient Scheme with Decoupling Host-side Flow Scheduling from Switches in DCNs", Proceedings of IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2017.
21. Zheng Li, Fang Wang, **Yu Hua**, Wei Tong, Jingning Liu, Yu Chen and Dan Feng, "Exploiting more parallelism from write operations on PCM", Proceedings of the 19th Design Automation and Test in Europe (**DATE**), 2016, pages: 768-773. (Long paper, Acceptance rate: 199/829=24%)
22. Wen Zhou, Dan Feng, **Yu Hua**, Jingning Liu, Fangting Huang, Yu Chen, "An Efficient Parallel Scheduling Scheme on Multi-partition PCM Architecture", Proceedings of the ACM/IEEE International Symposium on Low Power Electronics and Design (**ISLPED**), 2016, pages: 344-349. (Acceptance rate as full paper: 44/190=23.2%)
23. **Yu Hua**, "Cheetah: An Efficient Flat Addressing Scheme for Fast Query Services in Cloud Computing", Proceedings of the 35th IEEE International Conference on Computer Communications (**INFOCOM**), 2016, pages: 82-90. (Acceptance rate: 300/1644=18%, Best-in-Session Presentation Award) WNLO News (Cheetah)
24. Yixin Chen, Wenbo He, **Yu Hua**, Wen Wang, "CompoundEyes: Near-duplicate Detection in Large Scale Online Video Systems in the Cloud", Proceedings of the 35th IEEE International Conference on Computer Communications (**INFOCOM**), 2016, pages: 892-900. (Acceptance rate: 300/1644=18%)
25. [**HPDC**] Yongli Cheng, Fang Wang, Hong Jiang, Yu Hua, Dan Feng, Xiuneng Wang, "DD-Graph: A Highly Cost-Effective Distributed Disk-based Graph-Processing Framework", Proceedings of ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC), 2016, pages: 259-262. (28/129=21.7%)
26. Chu Li, Dan Feng, **Yu Hua**, Fang Wang, "Improving RAID Performance Using an Endurable SSD Cache", Proceedings of the 45th International Conference on Parallel Processing (**ICPP**), 2016. (Regular Paper, Acceptance rate: 53/251=21.1%)
27. Zheng Li, Fang Wang, Dan Feng, **Yu Hua**, Wei Tong, Jingning Liu, Xiang Liu, "Tetris Write: Exploring More Write Parallelism Considering PCM Asymmetries", Proceedings of the 45th International Conference on Parallel Processing (**ICPP**), 2016. (Regular Paper, Acceptance rate: 53/251=21.1%)
28. Tingwei Zhu, Fang Wang, **Yu Hua**, Dan Feng, Qingyu Shi, Jiahao Liu, "MIC: An Efficient Anonymous Communication System in Data Center Networks", Proceedings of the 45th International Conference on Parallel Processing (**ICPP**), 2016. (Regular Paper, Acceptance rate: 53/251=21.1%)
29. Yongli Cheng, Fang Wang, Hong Jiang, **Yu Hua**, Dan Feng, Xiuneng Wang, "LCC-Graph: A High-Performance Graph-Processing Framework with Low Communication Costs", Proceedings of IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2016, pages: 91-100. (Full paper, Acceptance rate: 27/131=20.6%)
30. Tingwei Zhu, Fang Wang, **Yu Hua**, Dan Feng, Yong Wan, Qingyu Shi, Yanwen Xie, "MCTCP: Congestion-Aware and Robust MultiCast TCP in Software-Defined Networks",

Proceedings of IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2016, pages: 51-60. (Full paper, Acceptance rate: 27/131=20.6%)

31. Yuanyuan Sun, **Yu Hua**, Dan Feng, Ling Yang, Pengfei Zuo, Shunde Cao, "MinCounter: An Efficient Cuckoo Hashing Scheme for Cloud Storage Systems", Proceedings of the 31st International Conference on Massive Storage Systems and Technology (**MSST**), 2015. (Acceptance rate: 23/100=23%)
32. Wen Xia, Chunguang Li, Hong Jiang, Dan Feng, **Yu Hua**, Leihua Qin, Yucheng Zhang, "Edelta: A Word-Enlarging Based Fast Delta Compression Approach", Proceedings of the 7th USENIX Workshop on Hot Topics in Storage and File Systems (**HotStorage**), 2015.
33. **Yu Hua**, Wenbo He, Xue Liu, Dan Feng, "SmartEye: Real-time and Efficient Cloud Image Sharing for Disaster Environments", Proceedings of the 34th IEEE International Conference on Computer Communications (**INFOCOM**), 2015, pages: 1616-1624. (Acceptance rate: 316/1640=19%)
34. Yunxiang Wu, Fang Wang, **Yu Hua**, Dan Feng, Yuchong Hu, Jingning Liu, Wei Tong, "FastFCoE: An Efficient and Scale-up Multi-core Framework for FCoE-based SAN Storage Systems", Proceedings of the 44th International Conference on Parallel Processing (**ICPP**), 2015, pages: 330-339. (Acceptance rate: 99/305=32.5%)
35. Jiwei Li, Zhe Peng, Bin Xiao, **Yu Hua**, "Make Smartphones Last A Day: Pre-processing Based Computer Vision Application Offloading", Proceedings of the Twelfth Annual IEEE International Conference on Sensing, Communication, and Networking (**SECON**), 2015. (Acceptance rate: 55/194=28.3%)
36. **Yu Hua**, "Smart Hashing based Queries in the Cloud", Proceedings of IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2015, pages: 1-10. (Acceptance rate: 20/89=22.5%)
37. **Yu Hua**, Xue Liu, Dan Feng, "Neptune: Efficient Remote Communication Services for Cloud Backups", Proceedings of the 33rd IEEE International Conference on Computer Communications (**INFOCOM**), 2014, pages: 844-852. (Acceptance rate: 19.4%)
38. Jing Zhang, Xiangke Liao, Shanshan Li, **Yu Hua**, Xue Liu, Bin Lin, "Aggrecode: Constructing Route Intersection for Data Reconstruction in Erasure Coded Storage Systems", Proceedings of the 33rd IEEE International Conference on Computer Communications (**INFOCOM**), 2014, pages: 2139-2147. (Acceptance rate: 19.4%)
39. **Yu Hua**, Lei Rao, Xue Liu, Dan Feng, "Cooperative and Efficient Real-time Scheduling for Automotive Communications", Proceedings of the 34th International Conference on Distributed Computing Systems (**ICDCS**), 2014, pages:134-143. (Acceptance rate: 66/500=13%)
40. Ying Fang, **Yu Hua**, Xue Liu, "Efficient End-to-End Communication Services for Mixed Criticality Avionics Systems", Proceedings of IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2014, pages: 66-75. (Acceptance rate: 23.8%)
41. **Yu Hua**, Dan Feng, "Needle in A Haystack: Cost-Effective Data Analytics for Real-Time Cloud Sharing", Proceedings of IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2014, pages: 41-49. (Acceptance rate: 23.8%)
42. Qiuyu Li, **Yu Hua**, Wenbo He, Dan Feng, Zhenhua Nie, Yuanyuan Sun, "Necklace: An Efficient Cuckoo Hashing Scheme for Cloud Storage Services", Proceedings of IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2014, pages: 50-55.

43. **Yu Hua**, Bin Xiao, Xue Liu, "NEST: Locality-aware Approximate Query Service for Cloud Computing", Proceedings of the 32nd IEEE International Conference on Computer Communications (**INFOCOM**), April 2013, pages: 1327-1335. (Acceptance rate: 17%)
44. **Yu Hua**, Xue Liu, Wenbo He, "HOSA: Holistic Scheduling and Analysis for Scalable Fault-tolerant FlexRay Design", Proceedings of the 31st IEEE International Conference on Computer Communications (**INFOCOM**), March 2012, pages: 1233-1241. (Acceptance rate: 18%)
45. **Yu Hua**, Xue Liu, Dan Feng, "MERCURY: A Scalable and Similarity-aware Scheme in Multi-level Cache Hierarchy", Proceedings of the 20th IEEE International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (**MASCOTS**), August 2012, pages: 371-378.
46. **Yu Hua**, Xue Liu, "Scheduling Design and Analysis for End-to-End Heterogeneous Flows in an Avionics Network", Proceedings of the 30th IEEE International Conference on Computer Communications (**INFOCOM**), April 2011, pages: 2417-2425. (Acceptance rate: 16%)
47. **Yu Hua**, Yifeng Zhu, Hong Jiang, Dan Feng, Lei Tian, "Scalable and Adaptive Metadata Management in Ultra Large-scale File Systems", Proceedings of the 28th International Conference on Distributed Computing Systems (**ICDCS**), June 2008, pages: 403-410. (Acceptance rate: 16%)
48. **Yu Hua**, Bin Xiao, Dan Feng, Bo Yu, "Bounded LSH for Similarity Search in Peer-to-Peer File Systems", Proceedings of the 37th International Conference on Parallel Processing (**ICPP**), September 2008, pages: 644-651. (Acceptance rate: 30.8%)
49. **Yu Hua**, Bin Xiao. "A Multi-attribute Data Structure with Parallel Bloom Filters for Network Services", Proceedings of IEEE International Conference on High Performance Computing (**HiPC**), LNCS 4297, December 2006, pages: 277-288. (Acceptance rate: 15.5%)

Journals:

1. Pengfei Zuo, **Yu Hua**, Yuanyuan Sun, Xue Liu, Jie Wu, Yuncheng Guo, Wen Xia, Shunde Cao, Dan Feng, "Bandwidth and Energy Efficient Image Sharing for Situation Awareness in Disasters", Accepted and to appear in IEEE Transactions on Parallel and Distributed Systems (**TPDS**).
2. Jie Wu, **Yu Hua**, Pengfei Zuo, Yuanyuan Sun, "Improving Restore Performance in Deduplication Systems via a Cost-efficient Rewriting Scheme", Accepted and to appear in IEEE Transactions on Parallel and Distributed Systems (**TPDS**).
3. Yang Zhang, Dan Feng, Wei Tong, **Yu Hua**, Jingning Liu, Zhipeng Tan, Chengning Wang, Bing Wu, Zheng Li, Gaoxiang Xu, "CACF: A Novel Circuit-Architecture Co-optimization Framework for Improving Performance, Reliability and Energy of ReRAM-based Main Memory System", ACM Transactions on Architecture and Code Optimization (**TACO**), Vol. 15, No. 2, Article 22. Publication date: May 2018.
4. Pengfei Zuo, **Yu Hua**, "A Write-friendly and Cache-optimized Hashing Scheme for Non-volatile Memory Systems", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol.29, No.5, May 2018, pages: 985-998.
5. Tingwei Zhu, Dan Feng, Fang Wang, **Yu Hua**, Qingyu Shi, Jiahao Liu, Yongli Cheng, and Yong Wan, "Efficient Anonymous Communication in SDN-based Data Center Networks", IEEE/ACM Transactions on Networking (**ToN**), Vol.25, No.6, December 2017, pages: 3767-3780.

6. Yunxiang Wu, Fang Wang, **Yu Hua**, Dan Feng, Yuchong Hu, Wei Tong, Jingning Liu, Dan He, "I/O Stack Optimization for Efficient and Scalable Access in FCoE-based SAN Storage", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol.28, No.9, September 2017, pages: 2514-2526.
7. Zheng Li, Fang Wang, Dan Feng, **Yu Hua**, Jingning Liu, Wei Tong, Yu Chen, Salah S. Harb, "Time and Space-efficient Write Parallelism in PCM by Exploiting Data Patterns", IEEE Transactions on Computers (**TC**), Vol.66, No.9, September 2017, pages: 1629-1644.
8. Yuanyuan Sun, **Yu Hua**, Dan Feng, Ling Yang, Pengfei Zuo, Shunde Cao, Yuncheng Guo, "A Collision-Mitigation Cuckoo Hashing Scheme for Large-scale Storage Systems", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol.28, No.3, March 2017, pages: 619-632.
9. **Yu Hua**, Xue Liu, Dan Feng, "Cost-Efficient Remote Backup Services for Enterprise Clouds", IEEE Transactions on Industrial Informatics (**TII**), Vol. 12, No. 5, December 2016, Pages: 1650-1657.
10. Wen Xia, Hong Jiang, Dan Feng, Fred Douglis, Philip Shilane, **Yu Hua**, Min Fu, Yucheng Zhang, Yukun Zhou, "A Comprehensive Study of the Past, Present, and Future of Data Deduplication", Proceedings of the IEEE (**PIEEE**), Vol.104, No.9, September 2016, pages: 1681-1710.
11. **Yu Hua**, Hong Jiang, Dan Feng, "Real-time Semantic Search using Approximate Methodology for Large-scale Storage Systems", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol. 27, No.4, April 2016, pages: 1212-1225.
12. Min Fu, Dan Feng, **Yu Hua**, Xubin He, Zuoning Chen, Jingning Liu, Wen Xia, Fangting Huang, Qing Liu, "Reducing Fragmentation for In-line Deduplication Backup Storage via Exploiting Backup History and Cache Knowledge", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol.27, No.3, March 2016, pages: 855-868.
13. **Yu Hua**, Bin Xiao, Xue Liu, Dan Feng, "The Design and Implementation of Locality-aware Approximate Queries in Hybrid Storage Systems", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol. 26, No.11, November 2015, pages: 3194-3207.
14. Wen Xia, Hong Jiang, Dan Feng, **Yu Hua**, "Similarity and Locality based Indexing for High Performance Data Deduplication", IEEE Transactions on Computers (**TC**), Vol.64, No.4, April 2015, pages: 1162-1176.
15. **Yu Hua**, Xue Liu, Wenbo He, Dan Feng, "Design and Implementation of Holistic Scheduling and Efficient Storage for FlexRay", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol.25, No.10, October 2014, pages: 2529-2539.
16. **Yu Hua**, Xue Liu, Hong Jiang, "ANTELOPE: A Semantic-aware Data Cube Scheme for Cloud Data Center Networks", IEEE Transactions on Computers (**TC**), Vol.63, No.9, September 2014, pages: 2146-2159.
17. **Yu Hua**, Hong Jiang, Yifeng Zhu, Dan Feng, Lei Xu, "SANE: Semantic-Aware Namespace in Ultra-large-scale File Systems", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol.25, No.5, May 2014, pages:1328-1338.
18. **Yu Hua**, Xue Liu, Dan Feng, "Data Similarity-aware Computation Infrastructure for the Cloud", IEEE Transactions on Computers (**TC**), Vol.63, No.1, January 2014, pages: 3-16.

19. **Yu Hua**, Xue Liu, "Scheduling Heterogeneous Flows with Delay-aware Deduplication for Avionics Applications", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol. 23, No. 9, September 2012, pages: 1790-1802.
20. **Yu Hua**, Bin Xiao, Bharadwaj Veeravalli, Dan Feng. "Locality-Sensitive Bloom Filter for Approximate Membership Query", IEEE Transactions on Computers (**TC**), Vol. 61, No. 6, June 2012, pages: 817-830.
21. **Yu Hua**, Hong Jiang, Yifeng Zhu, Dan Feng, Lei Tian. "Semantic-Aware Metadata Organization Paradigm in Next-Generation File Systems", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol.23, No. 2, February 2012, pages: 337-344.
22. **Yu Hua**, Yifeng Zhu, Hong Jiang, Dan Feng, Lei Tian. "Supporting Scalable and Adaptive Metadata Management in Ultra Large-scale File Systems", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol.22, No.4, April 2011, pages: 580-593.
23. Bin Xiao, **Yu Hua**. "Using Parallel Bloom Filters for Multi-attribute Representation on Network Services", IEEE Transactions on Parallel and Distributed Systems (**TPDS**), Vol.21, No.1, January 2010, pages: 20-32.
24. **Yu Hua**, Bin Xiao, Jianping Wang. "BR-tree: A Scalable Prototype for Supporting Multiple Queries of Multidimensional Data", IEEE Transactions on Computers (**TC**), Vol.58, No.12, 2009, pages: 1585-1598.

Projects

1. **PI**: "Research on Organization Model and Key Technology of Massive Time-constrained Data in Cloud Storage Systems", National Natural Science Foundation of China (NSFC), 2018-2021.
2. **PI**: "The Principle and Methods of Software-defined Configurable Distributed Storage Systems", National Key Research and Development Program of China, 2016-2021.
3. **PI**: "Flat Addressing Schemes for In-memory Computing in Massive Storage Systems", State Key Laboratory of Computer Architecture, 2016-2017.
4. **PI**: "Research on Correlation-Aware Organization Model and Key Technology in Hybrid Storage Systems", National Natural Science Foundation of China (NSFC), 2012-2015.
5. **PI**: "Research on Multi-dimensional Metadata Structure and Fast Query Approach in Large-scale Storage System", National Natural Science Foundation of China (NSFC), 2008-2010.
6. Key Member: "Basic Research on Data Storage System Theory and Technology for Complex Application Environment", National Basic Research 973 Program of China, 2011-2015.
7. Collaborator: "SANE: Semantic-Aware Namespace in Exascale File Systems", National Science Foundation (NSF), 2011-2014.
8. Postdoc Research Fellow: "HECURA: A New Semantic-Aware Metadata Organization for Improved File-System Performance and Functionality in High-End Computing", National Science Foundation (NSF), 2009-2013.
9. Key Member: "Information Storage Systems and Technology", the Program for Changjiang Scholars and Innovative Research Team in University, 2008-2010. (Evaluation: Excellence)

10. Key Member: "Research on Organization and Key Technologies of Storage Systems on the Next Generation Internet", National Basic Research 973 Program of China, 2005-2009. (Evaluation: Excellence).

Professional Activities

Academic Member:

Distinguished Member: CCF

Senior Member: ACM and IEEE

Member: USENIX, ChinaSys, CCF YOCSEF, CCF Information Storage Technology Committee, CCF High-Performance Computing Committee, CCF Computer Architecture Committee

Member of Editorial Board:

Associate Editor: Frontiers of Computer Science (FCS, 2014-)

Editor: Journal of Communications and Networks (JCN, 2015-)

Chair or PC Member for Conference and Workshop:

External Review Committee: The 24th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS**), 2019.

Program Committee Member: The International Conference for High Performance Computing, Networking, Storage and Analysis (**SC**), 2019.

Program Committee Member: IEEE International Conference on Computer Communications (**INFOCOM**), 2019.

Program Committee Member: The 39th IEEE International Conference on Distributed Computing Systems (**ICDCS**), 2019.

Program Committee Member: The 22nd Design Automation and Test in Europe (**DATE**), 2019.

Program Committee Member: The 19th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (**CCGrid**), 2019

Program Committee Member: The 36th IEEE International Conference on Computer Design (**ICCD**), 2018.

Program Committee Member: USENIX Annual Technical Conference (**USENIX ATC**), 2018.

Program Committee Member: The 10th USENIX Workshop on Hot Topics in Storage and File Systems (**HotStorage**), 2018.

Program Committee Member: ACM Symposium on Cloud Computing (**SoCC**), 2018.

External Review Committee (ERC): The 23rd ACM International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS**), 2018.

Program Committee Member: IEEE International Conference on Computer Communications (**INFOCOM**), 2018.

External Review Committee: The 32nd ACM International Conference on Supercomputing (**ICS**), 2018.

Program Committee Member: The 38th IEEE International Conference on Distributed Computing Systems (**ICDCS**), 2018.

Program Committee Member: The 21st Design Automation and Test in Europe (**DATE**), 2018.

Program Committee Member: International Conference on High Performance Computing in Asia-Pacific Region (**HPC Asia**), 2018.

Program Committee Member: The 18th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (**CCGrid**), 2018

External Review Committee: The Design Automation Conference (**DAC**), 2018

Program Committee Member: ACM/IEEE International Conference on Cyber-Physical Systems (**ICCPS**), 2018.

General Co-Chair: The 3rd Workshop of Software-Defined Data Communications and Storage (**SDDCS**) 2017 with ASPLOS 2017.

Program Committee Member: USENIX Annual Technical Conference (**USENIX ATC**), 2017

Poster Program/Student Research Competition Committee Member: The 26th ACM Symposium on Operating Systems Principles (**SOSP**), 2017.

Program Committee Member: The 33rd International Conference on Massive Storage Systems and Technology (**MSST**), 2017.

External Review Committee (ERC): The 22nd ACM International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS**), 2017.

Program Committee Member: The 37th IEEE International Conference on Distributed Computing Systems (**ICDCS**), 2017.

Program Committee Member: The International Conference on Languages, Compilers, Tools and Theory for Embedded Systems (**LCTES**), 2017.

Program Committee Member: The eighth ACM International Conference on Future Energy Systems (**ACM e-Energy**), 2017.

Program Committee Member: The 31st IEEE International Parallel and Distributed Processing Symposium (**IPDPS**), 2017.

Program Committee Member: The 36th IEEE International Conference on Computer Communications (**INFOCOM**), 2017.

Program Committee Member: The 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (**CCGrid**), 2017.

Program Committee Member: The 32nd ACM/SIGAPP Symposium on Applied Computing (**SAC**), 2017.

Program Committee Member: The 28th International Conference on Database and Expert Systems Applications (**DEXA**), 2017

External Review Committee: The Design Automation Conference (**DAC**), 2017

Program Vice Co-chair: The IEEE International Conference on Parallel and Distributed Systems (**ICPADS**), 2016.

Program Vice Co-chair: The 11th IEEE International Conference on Networking, Architecture, and Storage (**NAS**), 2016.

Program Co-chairs: IEEE ICDCS 2016 Workshop of Software-Defined Data Communications and Storage (**SDDCS**), 2016.

Program Committee Member: The 32nd International Conference on Massive Storage Systems and Technology (**MSST**), 2016.

Program Committee Member: The 36th International Conference on Distributed Computing Systems (**ICDCS**), 2016

Program Committee Member: The 35th IEEE International Conference on Computer Communications (**INFOCOM**), 2016

Program Committee Member: The 7th ACM/SPEC International Conference on Performance Engineering (**ICPE**), 2016.

Program Committee Member: The 45th Annual Conference 2016 International Conference on Parallel Processing (**ICPP**), 2016.

Program Committee Member: The 16th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (**CCGrid**), 2016

Program Committee Member: The 5th IEEE Non-Volatile Memory System and Applications Symposium (**NVMSA**), 2016

Program Committee Member: The 31st ACM/SIGAPP Symposium on Applied Computing (**SAC**), 2016.

Program Committee Member: IEEE Real-Time Systems Symposium (**RTSS**), 2015.

Session Chair: IEEE/ACM International Symposium on Quality of Service (**IWQoS**), 2015

Program Committee Member: The 35th International Conference on Distributed Computing Systems (**ICDCS**), 2015

Publicity Co-chair: The 4th IEEE Non-Volatile Memory System and Applications Symposium (**NVMSA**), 2015

Program Committee Member: The 44th International Conference on Parallel Processing (**ICPP**), 2015

Program Committee Member: The 4th IEEE Non-Volatile Memory System and Applications Symposium (**NVMSA**), 2015

Program Committee Member: The 7th International Conference on Cloud Computing Technology and Science (**CloudCom**), 2015

Program Committee Member: The 14th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (**CCGrid**), 2014

Program Committee Member: The 42nd Annual Conference - International Conference on Parallel Processing (**ICPP**), 2013.

Invited Talk

1. "Storage Security Ecosystem: A Top-down View", City University of Hong Kong, August 2018.
2. "NVM-based Memory Systems", University of Massachusetts Lowell, July 2018.
3. "Semantic-aware Edge Storage Systems", University of Massachusetts Boston, November 2017.
4. "Intelligent Data Reduction in Massive Storage Systems", The George Washington University, November 2017.
5. "Deduplication-aware Architecture and System for Edge Computing", University of California, Riverside, March 2017.
6. "Deduplication-aware NVM Systems for Edge Computing", The workshop of EuroSys 2017 PC Member in Google Zurich, January 2017.
7. "Deduplication-aware Edge Computing", Department of Information Technology, Uppsala University, Sweden, January 2017.
8. "Write Performance Optimization for PCM: A Synergized View", Arizona State University, November 2016.
9. "Correlation-aware Hashing for Smarter Storage", MathWorks Asia Research Summit, Tokyo, September 2016.
10. "Deduplication-aware Ecosystem: A Bottom-up Approach", University of Central Florida, March 2016.
11. "Approximate Storage Methodology: Systems and Architecture", Oak Ridge National Laboratory, November 2015.
12. "Smart Big Data Analytics in Large-scale Storage Systems", The Hong Kong Polytechnic University, March 2015.
13. "Near Real-time Data Analytics: Observations and Insights", University of Colorado at Colorado Springs, November 2014.
14. "Smart Deduplication and Compression in Mobile Clouds", IEEE/CIC International Conference on Communications in China (ICCC), October 2014.
15. "Non-volatile Storage Support for Data Deduplication", in NVMSA 2014, in conjunction with RTCSA 2014, August 2014.
16. "Software-defined Deduplication in Networking Systems", City University of Hong Kong, May 2014.
17. "Software-defined Deduplication and Compression in Remote backups", McGill University, Montreal, Canada, May 2014.
18. "Design and Implementation of Network Storage Systems: From Cloud to SDN", McGill University, Montreal, Canada, November 2013.
19. "Large-scale Storage Systems", The Hong Kong Polytechnic University, November 2011.

Honors and Awards

1. ACM Distinguished Speaker, 2017.
2. CCF Distinguished Speaker, 2017, 2016.
3. Best-in-Session Presentation Award in IEEE INFOCOM 2016.
4. Outstanding Contribution Award as Associate Editor in Frontiers of Computer Science (FCS), 2016.
5. Best Paper Award in Tsinghua Science and Technology (TST), 2015
6. Outstanding Reviewer in Journal of Parallel and Distributed Computing (JPDC), 2015.
7. Advisor Awards for Excellent B.E Thesis in Hubei Province, 2014
8. Young Science Dawning Scholar in Hubei Province, 2014
9. Advisor Awards for Excellent B.E Thesis in the University, 2014
10. Award for SIGCOMM Poster by Hong Kong Pei Hua Education Foundation, 2013
11. Award for Electronics Information Science and Technology (The Second Prize) , Chinese Institute of Electronics, 2011
12. Advisor Award for Excellent Master Thesis in Hubei Province, 2010