Dr. SHENG DI

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Education

- 2007~2012, Ph.D., The University of Hong Kong, Hong Kong, China
- 2004~2007, M.Phil./Master's degree, Department of Computer Science, Huazhong University of Science and Technology, Wuhan, China
- 2000~2004, B.S., Computer Science, South-Central University for Nationalities, China

Research Experience

- 2019~present Computer Scientist, MCS, Argonne National Laboratory
- 2017~2019 Assistant Computer Scientist, MCS, Argonne National Laboratory
- 2014~2017 Postdoctoral Fellow, Argonne National Laboratory
- 2012~2014 Postdoctoral Researcher, INRIA (France)

Academic Accomplishments (2006-2025)

- **200+** refereed journal/conference/workshop publications
- **130**+ invited reviews on international conference/journal papers
- **60**+ invited program committee members or program chairs
- **6,953** citations of publications (based on Google Scholar up to July/01/2025)
- h-index=**42**, i10-index=**123** (based on Google Scholar)
- **50+** invited talks/presentations
- **10+** key software/libraries in the HPC and cloud community
- **60+** mentored students

Awards and Honors

- 2025, Best Paper Award Nomination in ACM ICS2025.
- 2025, Best Paper Award Nomination in ACM HPDC2025.
- 2025, Best Paper Award in IPDPS2025.
- 2024, IEEE Distinguished Contributor Recognition (2024 class)
- 2024, Best Paper Award in DRBSD10 held in conjunction with SC2024.
- 2024, Best Student Paper Finalist in SC2024.
- 2023, 1st place of ACM SRC award -- Graduates in SC23.
- 2023, Best Paper Candidate/Nomination in ICS2023.

- 2023, Best student poster award in IEEE Cluster2023 (co-mentor).
- 2023, Best Paper Award in Transactions on Big Data 2023.
- 2022, 1st place of ACM SRC award – Undergraduates in SC022 (co-mentor)
- 2022, 2nd place of ACM SRC award -- Graduates in SC2022 (I am the co-mentor)
- 2022, Best paper finalist, IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (IEEE/ACM SC2022), 2022
- 2022, Best paper award, Proceedings of the 8th International Workshop on Data Reduction for Big Scientific Data (DRBSD8) in conjunction with SC2022, 2022
- 2021, DOE ASCR Early Career Research Program Award (ECRP)
- 2021, DOE R&D 100 award (in recognition of leading SZ – a lossy compression framework for scientific data)
- 2019, DOE R&D 100 award (in recognition of participating in SCR: Scalable Checkpoint/Restart Framework)
- 2019, IEEE-Chicago Distinguished Research and Development Award, in recognition of the research on scientific data compression and contribution to software development
- 2018 IEEE-Chicago Distinguished Mentoring Award, in recognition of mentoring as a scientist in the area of data compression and software development, 2018
- Overall Best paper award and Best paper award in Application, Algorithms and Libraries track: IEEE International Conference on Cluster Computing (IEEE Cluster 2018), 2018
- Best paper award in Data, Storage, and Visualization track: IEEE International Conference on Cluster Computing (IEEE Cluster 2018), 2018
- Best paper nominated: The 8th IEEE Symposium on Large Data Analysis and Visualization (IEEE LDAV) in conjunction with IEEE VIS 2018
- Best paper nominated: IEEE International Conference on Cluster Computing (IEEE Cluster 2014), 2014
- Best paper nominated: 40th International Conference on Parallel Processing (IEEE ICPP2011), 2011
- Best student paper award: International Conference on Utility and Cloud Computing
- Best paper award: International Conference on the Digital Society (IEEE ICDS2008), 2008
- Sum Tuition Scholarship, 2005-2006, Huazhong University of Science and Technology
- "Triple-A" Outstanding Student, 2005-2006, Huazhong University of Science and Technology
- First-Class Scholarship, 2004-2005, Huazhong University of Science and Technology
- Sum Tuition Scholarship, 2004-2005, Huazhong University of Science and Technology
- Excellent Leadership Award, 2003-2004, South-Central University for Nationalities
- Second-Class Scholarship, 2002-2003, South-Central University for Nationalities (top 2%)
- "Triple-A" Outstanding Student, 2002-2003, South-Central University for Nationalities
- First-class Scholarship, 2001-2002, South-Central University for Nationalities (top 1%)
- "Triple-A" Outstanding Student, 2000-2001, South-Central University for Nationalities

Fundings/Grants

- Senior Personnel: **DOE** ZF: A novel framework to design trustworthy lossy compressors for scientific data approaching lossy compressibility limits, 2024-2027.
- Co-PI: **NSF** Collaborative Research: Frameworks: FZ: A fine-tunable cyberinfrastructure framework to streamline specialized lossy compression development (PI: Franck Cappello), 2023-2028. (Funded) (I participated in the design and writing) ($3.14M)

- Co-PI: **DOE** ASCR distributed resilience: Scalable and Resilient Modeling for Federated-Learning-Based Complex Workflows, 2023-2028 $4.35M
- PI: **NSF** OAC ROCCI, Elements: ROCCI: “Integrated Cyberinfrastructure for In Situ Lossy Compression Optimization Based on Post Hoc Analysis Requirements” 2021-2025 $320K.
- PI: **DOE** ASCR SDR (**Early Career Award**): “Scalable Dynamic Scientific Data Reduction” - 2021-2026 $2.5M.
- Co-PI: **DOE** ASCR Data Reduction: “Automatic Generation of Algorithms for High-Speed Reliable Lossy Compression,” 2021-2025. (PI: Martin Burtscher) - $400,000.
- Co-PI: **NSF**: “CDS&E: Collaborative Research: HyLoC: Objective-driven Adaptive Hybrid Lossy Compression,” 2020-2023. (PI: Dingwen Tao) - $264,429
- Co-PI: **NSF**: “ALETHEIA: A Framework for Automatic Detection/Correction of Corruptions in Extreme Scale Scientific Executions,” 2016-2021. (PI: Tom Peterka) - $250,000
- Senior Personnel: **DOE** ECP: “VeloC-SZ”, renewal and combination of the ECP VeloC and ECP VeloC/SZ projects, 2019-2023. (PI: Franck Cappello) - $4,862,531
- Senior Personnel: **DOE** CODAR: “CODAR: Co-design Center for Online Data Analysis and Reduction at Exascale,” 2016-2020 (PI: Ian Foster) - $5,438,715
- Senior Personnel: ARAMCO: “Exploration of Lossy Data Compression for Seismic Imaging Application,” 2019-2021. (PI: Franck Cappello) - $1,026,853

Professional Activities

- Senior Member of ACM
- Senior Member of IEEE
- Scientist at Large through the Consortium for Advanced Science and Engineering at the University of Chicago
- Institute Fellow of Northwestern-Argonne Institute of Science and Engineering (NAISE)

Publications - Refereed Journal Articles

1. Prasanna Balaprakash, Krishnan Raghavan, Franck Cappello, Ewa Deelman, Anirban Mandal4, Hongwei Jin, Imtiaz Mahmud, Komal Thareja, Shixun Wu, Pawel Zuk, Mariam Kiran, Zizhong Chen, **Sheng Di**, Kesheng Wu, "SWARM: Reimagining Scientific Workflow Management Systems in a Distributed World", International Journal of High Performance Computing Applications (***IJHPCA2025***), 2025.
2. Zhaorui Zhang, **Sheng Di**, Kai Zhao, Sian Jin, Dingwen Tao, Zhuoran Ji, Benben Liu, Khalid Ayed Alharthi, Jiannan Cao, and Franck Cappello, "FedCSpc: A Cross-Silo Federated Learning System with Error-Bounded Lossy Parameter Compression", in IEEE Transactions on Distributed and Computer Systems (***TPDS***), 2025.
3. **Sheng Di**, Jinyang Liu, Kai Zhao, Xin Liang, Robert Underwood, et al. "A Survey on Error-Bounded Lossy Compression for Scientific Datasets", ACM Computing Survey (***ACM CSUR***), 2025.
4. Franck Cappello, Mario Acosta, Emmanuel Agullo, Hartwig Anzt, Jon Calhoun, **Sheng Di**, Luc Giraud, Thomas Grutzmacher, Sian Jin, Kentaro Sano, Kento Sato, Amarjit Singh, Dingwen Tao, Jiannan Tian, Tomohiro Ueno, Robert Underwood, Federic Vivien, Xavier Yepes, Kazutomo Yoshii, Boyuan Zhang "Multifacets of lossy compression for scientific data in the Joint-Laboratory of Extreme Scale Computing", International Journal of Future Generation Computer Systems (***FGCS***), 2024.
5. Leonardo Bautista-Gomez, Anne Benoit, **Sheng Di**, Thomas Herault, Yves Robert, and Hongyang Sun, "A survey on checkpointing strategies: Should we always checkpoint a la Young/Daly?", Future Generation Computer Systems (***FGCS***), 2024,

6. Robert Underwood, Julie Bessac, David Krasowska, Jon C Calhoun, **Sheng Di**, Franck Cappello, "Black-box statistical prediction of lossy compression ratios for scientific data", International Journal of High Performance Computing Applications (***IJHPCA***), 2023, Volume 37, Issue 3-4.

7. Robert Underwood, Chun Hong Yoon, Ali M. Gok, **Sheng Di**, Franck Cappello, "ROIBIN-SZ: Fast and Science-Preserving Compression for Serial Crystallography", Journal of Synchrotron Radiation News (***SRN***), 2023.

8. Xin Liang, **Sheng Di**, Franck Cappello, Mukund Raj, Chunhui Liu, Kenji Ono, Zizhong Chen, Tom Peterka, and Hanqi Guo, "Toward Feature-Preserving Vector Field Compression," IEEE Transactions on Visualization and Computer Graphics (***IEEE TVCG***), 2022.

9. Xin Liang, Kai Zhao, **Sheng Di**, Sihuan Li, Robert Underwood, Ali M. Gok, Jiannan Tian, Junjing Deng, Jon C. Calhoun, Dingwen Tao, Zizhong Chen, Franck Cappello, "SZ3: A Modular Framework for Composing Prediction-Based Error-Bounded Lossy Compressors,"IEEE Transactions on Big Data (***IEEE TBD***), 2022, ***best paper award***.

10. Yuanjian Liu, **Sheng Di**, Kai Zhao, Sian Jin, Cheng Wang, Kyle Chard, Dingwen Tao, Ian Foster, Franck Cappello, "Optimizing Error-Bounded Lossy Compression for Scientific Data with Diverse Constraints," IEEE Transactions on Distributed and Computer Systems (***IEEE TPDS***), 2022.

11. Ian Foster, Mark Ainsworth, Julie Bessac, Franck Cappello, Jong Choi, **Sheng Di**, et al., "Online Data Analysis and Reduction: An important Co-design Motif for Extreme-Scale Computers," The International Journal of High Performance Computing Applications (***IJHPCA***), 2022.

12. Robert Underwood, Jon C. Calhoun, **Sheng Di**, Amy Apon, Franck Cappello, "OptZConfig: Efficient Parallel Optimization of Lossy Compression Configuration," IEEE Transactions on Distributed and Computer Systems (***IEEE TPDS***), 2022.

13. Kai Zhao, **Sheng Di**, Sihuan Li, Xin Liang, Yujia Zhai, Jieyang Chen, Kaiming Ouyang, Franck Cappello and Zizhong Chen, “FT-CNN: Algorithm-Based Fault Tolerance for Convolutional Neural Networks,” IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***) Special Section on Parallel and Distributed Computing Techniques for AI, ML and DL (***TPDS-SS-AI 2020***), 2020.

14. Hao Fan, Song Wu, Xinyu Zhao, Zhenjiang Xie, **Sheng Di**, Jiang Xiao, Chen Yu, Hai Jin, “Accelerating Parallel Applications in Cloud Platforms via Adaptive Time-Slice Control,” IEEE Transactions on Computers (***IEEE TC***), 2020.

15. Xiangyu Zou, Tao Lu, Wen Xia, Xuan Wang, Weizhe Zhang, Haijun Zhang, **Sheng Di**, Dingwen Tao, and Franck Cappello, “Performance Optimization for Relative-Error-Bounded Lossy Compression on Scientific Data,”,IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***), 2020.

16. Franck Cappello, **Sheng Di**, Sihuan Li, Xin Liang, Ali M. Gok, Dingwen Tao, Chun Hong Yoon , Xin-Chuan Wu, Yuri Alexeev, and Federic T. Chong, “Use cases of lossy compression for floating-point data in scientific datasets,” in The International Journal of High Performance Computing Applications (***IJHPCA***), 33(6), 1201–1220, 2019.

17. Dingwen Tao, **Sheng Di**, Xin Liang, Zizhong Chen, and Franck Cappello, “Optimizing Lossy Compression Rate-Distortion from Automatic Online Selection between SZ and ZFP,” IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***), 30(8):1857-1871, 2019.

18. **Sheng Di**, Dingwen Tao, Xin Liang, and Franck Cappello, “Efficient Lossy Compression for Scientific Data based on Pointwise Relative Error Bound,” IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***), 30(2):331-345, 2019.

19. **Sheng Di**, Hanqi Guo, Rinku Gupta, Eric R. Pershey, Marc Snir, and Franck Cappello, “Exploring Properties and Correlations of Fatal Events in a Large-Scale HPC System,” IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***), 30(2):361-374, 2019.

20. Xinhou Wang, Kezhi Wang, Song Wu, **Sheng Di**, Hai Jin, Kun Yang, and Shumao Ou, "Dynamic Resource Scheduling in Mobile Edge Cloud with Cloud Radio Access Network,” IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***), 29(11):2429-2445, 2018.

21. Omer Subasi, **Sheng Di**, Leonardo Bautista-Gomez, Prasanna Balaprakash, Osman Unsal, Jesus Labarta, Adrian Cristal, Sriram Krishnamoorthy, and Franck Cappello, “Exploring the

Capabilities of Support Vector Machines in Detecting Silent Data Corruptions," Journal of Sustainable Computing, Informatics and Systems (***SUSCOM***) 19:277-290, 2018.

22. Eduardo Berrocal, Leonardo Bautista-Gomez, **Sheng Di**, Zhiling Lan, and Franck Cappello, "Toward General Software Level Silent Data Corruption Detection for Parallel Applications," IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***) 28(12):3642-3655, 2017.
23. Dingwen Tao, **Sheng Di**, Hanqi Guo, Zizhong Chen, and Franck Cappello, "Z-checker: A Framework for Assessing Lossy Compression of Scientific Data," The International Journal of High Performance Computing Applications (***IJHPCA17***) 33(2):285-303, 2017.
24. **Sheng Di** and Franck Cappello, "Optimization of Error-Bounded Lossy Compression for Hard-to-Compress HPC Data," IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***) 29(1):129-143, 2017.
25. Song Wu, Yihong Wang, Wei Luo, **Sheng Di**, Haibao Chen, Xiaolin Xu, Hai Jin, and Ran Zheng, "ACStor: Optimizing Access Performance of Virtual Disk Images in Clouds," IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***)28(9):2414-2427, 2017.
26. Xuanhua Shi, Junling Liang, Xuan Luo, **Sheng Di**, Bingsheng He, Lu Lu, and Hai Jin, "Frog: Asynchronous Graph Processing on GPU with Hybrid Coloring Model," IEEE Transactions on Knowledge and Data Engineering (***IEEE TKDE***)30(1):29-42, 2017.
27. **Sheng Di**, Yves Robert, Frédéric Vivien, and Franck Cappello, "Towards an Optimal Online Checkpoint Solution under a Two-Level HPC Checkpoint Model," IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***) 28(1):244-259, 2017.
28. **Sheng Di** and Franck Cappello, "Adaptive Impact-Driven Detection of Silent Data Corruption for HPC Applications," IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***) 27(10):2809-2823, 2016.
29. Song Wu, Haibao Chen, **Sheng Di**, Bingbing Zhou, Zhenjiang Xie, Hai Jin, and Xuanhua Shi, "Synchronization-Aware Scheduling for Virtual Clusters in Cloud," IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***) 26(10):2880-2902, 2014.
30. Hai Jin, Xinhou Wang, Song Wu, **Sheng Di**, and Xuanhua Shi, "Towards Optimized Fine-Grained Pricing of IaaS Platform," IEEE Transactions on Cloud Computing (***IEEE TCC***) 3(4):436-448, 2014.
31. **Sheng Di** and Franck Cappello, "GloudSim: Google Trace based Cloud Simulator with Virtual Machines," Journal of Software – Practice and Experience (***Wiley SPE***) 45(11), 1571-1590, 2014.
32. **Sheng Di**, Derrick Kondo, and Franck Cappello, "Characterizing and Modeling Cloud Applications/Jobs on a Google Data Center," Journal of Supercomputing (***Springer JS***), 69(1):139-160, 2014.
33. **Sheng Di**, Derrick Kondo, and Cho-Li Wang, "Optimization of Composite Cloud Service Processing with Virtual Machines," IEEE Transactions on Computers (***IEEE TC***) 2014.
34. **Sheng Di**, Derrick Kondo, and Walfredo Cirne, "Google Hostload Prediction based on Bayesian Model with Optimized Feature Combination," Journal of Parallel Distributed Computing (***Elsevier JPDC***) 74(1):1820-1832, 2014.
35. **Sheng Di** and Cho-Li Wang, "Error-Tolerant Resource Allocation and Payment Minimization for Cloud System," IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***) 24(6): 1097-1106, 2013.
36. **Sheng Di**, Cho-Li Wang, and Franck Cappello, "Adaptive Algorithm for Minimizing Cloud Task Length with Load Prediction Errors," IEEE Transactions on Cloud Computing (***IEEE TCC***) 2(2):194-207, 2013.
37. **Sheng Di**, Cho-Li Wang, and Ling Chen, "Ex-Post Efficient Resource Allocation for Self-organizing Cloud," Journal of Computers and Electrical Engineering (***elsevier JCEE***), 39(7):2342-2356, 2013, **http://dx.doi.org/10.1016/j.compeleceng.2012.12.018**.

38. **Sheng Di** and Cho-Li Wang, “Dynamic Optimization of Multi-Attribute Resource Allocation in Self-Organizing Clouds,” IEEE Transactions on Parallel and Distributed Systems (***IEEE TPDS***) 24(3):464-478, 2012, http://doi.ieeecomputersociety.org/10.1109/TPDS.2013.144.

39. **Sheng Di** and Cho-Li Wang, “Decentralized Proactive Resource Allocation for Maximizing Throughput of P2P Grid,” Journal of Parallel Distributed Computing (***Elsevier JPDC***), 72(2):308-321, 2012, doi:10.1016/j.jpdc.2011.10.010, available online 4 Nov. 2011.

40. Yinfeng Wang, Hao Liu, **Sheng Di** and Haoyu Hu, “A Parallel Index Mechanism for Large Scale High Dimensional Data,” Journal of Huazhong University of Science and Technology (Nature Science Edition, 39(1), June 2011, in Chinese.

Publications - Refereed Conference Papers

41. Franck Cappello, Robert Underwood, Yuri Alexeev, Alison Baker, Ebru Bozdag, Martin Burtscher, Kyle Chard, **Sheng Di**, Kyle Gerad Felker, et al, "What to Support: When You are Compressing: The State of Practice, Gaps, and Opportunities for Scientific Data Compression", IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (I***EEE/ACM SC2025***), 2025.

42. Yafan Huang, **Sheng Di**, Guanpeng Li, Franck Cappello, "GPU Lossy Compression for HPC Can Be Versatile and Ultra-Fast", IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2025***), 2025.

43. Shixun Wu, Jinwen Pan, Jinyang Liu, Jiannan Tian, Ziwei Qiu, Jiajun Huang, Kai Zhao, Xin Liang, **Sheng Di**, Zizhong Chen, Franck Cappello, "Boosting Scientific Error-Bounded Lossy Compression through Optimized Synergistic Lossy-Lossless Orchestration", IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2025***), 2025.

44. Yafan Huang, S**heng Di**, Robert Underwood, Peco Myint, Miaoqi Chu, Guanpeng Li, Nicholas Schwarz, Franck Cappello, "IsCOMP: Efficient Light Source Compression", IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2025***), 2025.

45. Tianhao Wu, Da Yan, Qihao Cheng, Lyuheng Yuan, **Sheng Di**, Jiao Han, Zhongyi Huang, and Ji Cheng, "CompreGel: Efficient Distributed Graph Propagation via Error-Bounded Lossy Message Compression", in 54th International Conference on Parallel Processing (***ACM ICPP2025***), 2025.

46. Jin Zhao, Qian Wang, Ligang He, Yu Zhang, **Sheng Di**, Bingsheng He, Xinlei Wang, Hui Yu, Hao Qi, Longlong Lin, Linchen Yu, Xiaofei Liao, Hai Jin, "TempGraph: An Efficient Chain-driven Temporal Graph Computing Framework on the GPU", in International Conference on Architectural Support for Programming Languages and Operating Systems (***ACM ASPLOS2025***), Pittsburgh, USA, 2025.

47. Jinyang Liu, Pu Jiao, Kai Zhao, Xin Liang, **Sheng Di**, and Franck Cappello, "QPET: A Versatile and Portable Quantity-of-Interest-preservation Framework for Error-Bounded Lossy Compression", in 51st International Conference on Very Large Database (***VLDB 2025***), 2025.

48. Zhuoxun Yang, **Sheng Di**, Longtao Zhang, Ruoyu Li, Ximiao Li, Jiajun Huang, Jinyang Liu, Franck Cappello, and Kai Zhao, "IPComp: Interpolation Based Progressive Lossy Compression for Scientific Applications", in International 34th Symposium on High-Performance Parallel and Distributed Computing (***ACM HPDC2025***), 2025, ***best paper nominated***.

49. Jiajun Huang, **Sheng Di**, Yafan Huang, Zizhong Chen, Franck Cappello, Yanfei Guo and Rajeev Thakur, "GHCL: Advancing GPU-aware Collective Communications with Homomorphic Compression", in International Conference on Supercomputing (***ACM ICS2025***), 2025.

50. Lingqi Zhang, Jiajun Huang, **Sheng Di**, and Mohamed Wahib. "Can Tensor Cores Benefit Memory-Bound Kernels." 17th Workshop on General Purpose Processing Using GPU (***GPGPU2025***), Las Vegas, NV US, March 3, 2025 - March 4, 2025. .

51. Boyuan Zhang, Yafan Huang, **Sheng Di**, Fengguang Song, Guanpeng Li, and Franck Cappello, "Pushing the Limits of GPU Lossy Compression: A Hierarchical Delta Approach", in International Conference on Supercomputing (***ACM ICS2025***), 2025. ***best paper nominated***.

52. Longtao Zhang, Ruoyu Li, Congrong Ren, **Sheng Di**, Jinyang Liu, Jiajun Huang, Robert Underwood, Pascal Grosset, Dingwen Tao, Xin Liang, Hanqi Guo, Franck Cappello, Kai Zhao, "LCP: Enhancing Scientific Data Management with Lossy Compression for Particles", in ACM Special Interest Group on Management of Data (***SIGMOD2025***), 2025.

53. Pu Jiao, **Sheng Di**, Mingze Xia, Xuan Wu, Jinyang Liu, Xin Liang, and Franck Cappello, "Improving the Efficiency of Interpolation-Based Scientific Data Compressors with Adaptive Quantization Index Prediction", in Proceedings of the 39th IEEE International Parallel and Distributed Processing Symposium (***IEEE IPDPS2025***), 2025.

54. Shihui Song, Robert Underwood, **Sheng Di**, Yafan Huang, Peng Jiang, Franck Cappello, "A Memory-efficient and Computation-balanced Lossy Compressor on Wafer-Scale Engine", in Proceedings of the 39th IEEE International Parallel and Distributed Processing Symposium (***IEEE IPDPS2025***), 2025.

55. Alexandra Poulos, Robert Underwood, Jon C. Calhoun, **Sheng Di**, and Franck Cappello, "Sensitivity and Impacts on Parallel Compression of Prediction of Lossy Compression Ratios for Scientific Data", in Proceedings of the 39th IEEE International Parallel and Distributed Processing Symposium (***IEEE IPDPS2025***), 2025.

56. Alex Fallin, Noushin Azami, **Sheng Di**, Franck Cappello, Martin Burtscher, "Fast and Effective Lossy Compression on GPUs and CPUs with Guaranteed Error Bounds", in Proceedings of the 39th IEEE International Parallel and Distributed Processing Symposium (***IEEE IPDPS2025***), 2025.

57. Grant Wilkins, **Sheng Di**, Robert Underwood, Jon C. Calhoun, and Franck Cappello, "To Compress or Not To Compress: Energy and Runtime Trade-Offs in Lossy Compressed I/O", in Proceedings of the 39th IEEE International Parallel and Distributed Processing Symposium (***IEEE IPDPS2025***), 2025.

58. Xuan Wu, **Sheng Di**, Congrong Ren, Pu Jiao, Mingze Xia, Cheng Wang, Hanqi Guo, Xin Liang, and Franck Cappello, "Enabling Efficient Error-controlled Lossy Compression for Unstructured Scientific Data", in Proceedings of the 39th IEEE International Parallel and Distributed Processing Symposium (***IEEE IPDPS2025***), 2025, ***best paper award***.

59. Shixun Wu, Yujia Zhai, Jinyang Liu, Jiajun Huang, Zizhe Jian, Huangliang Dai, **Sheng Di**, Zizhong Chen, and Franck Cappello, "TurboFFT: Co-Designed High-Performance and Fault-Tolerant Fast Fourier Transform on GPUs", Proceedings of the 30th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (***ACM PPoPP25***), 2025.

60. Baixi Sun, Weijin Liu, J. Gregory Pauloski, Jiannan Tian, Jinda Jia, Daoce Wang, Boyuan Zhang, Mingkai Zheng, **Sheng Di**, Sian Jin, Zhao Zhang, Xiaodong Yu, Kamil A. Iskra, Pete Beckman, Guangming Tan, and Dingwen Tao, "COMPSO: Optimizing Gradient Compression for Distributed Training with Second-Order Optimizers", Proceedings of the 30th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (***ACM PPoPP25***), 2025.

61. Khondoker Mirazul Mumenin, Dong Dai, Jinzhen Wang and **Sheng Di**, "QualityNet: Error-bounded Lossy Compression Quality Prediction via Deep Surrogate", IEEE International Conference on Big Data (***IEEE BigData24***), 2024.

62. Shixun Wu, Yitong Ding, Yujia Zhai, Jinyang Liu, Jiajun Huang, Zizhe Jian, Huangliang Dai, **Sheng Di**, Bryan M. Wong, Zizhong Chen, Franck Cappello, "FT K-Means: A High-Performance K-Means on GPU with Fault Tolerance", IEEE International Conference on Cluster Computing (***IEEE CLUSTER24***), 2024.

63. Tripti Agarwal, **Sheng Di**, Jiajun Huang, Yafan Huang, Ganesh Gopalakrishnan, Robert Underwood, Kai Zhao, Xin Liang, Guanpeng Li, and Franck Cappello, "SZOps: Scalar Operations for Error-bounded Lossy Compressor for Scientific Data", IEEE/ACM The 10th International Workshop on Data Analysis and Reduction for Big Scientific Data (***DRBSD***), in

conjunction with The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2024***),2024.

64. Thomas Grutzmacher, Robert Underwood, **Sheng Di**, Franck Cappello, and Hartwig Anzt, "FRSZ2 for In-Register Block Compression Inside GMRES on GPUs", IEEE/ACM The 10th International Workshop on Data Analysis and Reduction for Big Scientific Data, in the conjunction with The International Conference for High Performance computing, Networking, Storage and Analysis (IEEE/ACM SC2024), 2024, ***best paper award***.

65. Yafan Huang, **Sheng Di**, Guanpeng Li, Franck Cappello, "cuSZp2: A GPU Lossy Compressor with Extreme Throughput and Optimized Compression Ratio", IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2024***), 2024, ***best paper finalist***.

66. Yafan Huang, **Sheng Di**, Zhaorui Zhang, Xiaoyi Lu, Guanpeng Li, "Versatile Datapath Soft Error Detection on the Cheap for HPC Applications", IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2024***), 2024

67. Jiajun Huang, **Sheng Di**, Xiaodong Yu, Zhaiyu Jia, Jinyang Liu, Zizhe Jian, Xin Liang, Kai Zhao, Xiaoyi Lu, Zizhong Chen, Franck Cappello, Yanfei Guo and Rajeev Thakur, "hZCCL: Accelerating Collective Communication with Co-designed Operation-supported Compression", IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2024***), 2024

68. Jinyang Liu, Jiannan Tian, Shixun Wu, **Sheng Di**, Boyuan Zhang, Robert Underwood, Yafan Huang, Jiajun Huang, Kai ZHao, Guanpeng Li, Dingwen Tao, Zizhong Chen, and Franck Cappello, "High-ratio Scientific Lossy Compression on GPUs with Optimized Multi-level Interpolation", IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2024***), 2024

69. Tri Nguyen, Md Hasanur Rahman, **Sheng Di** and Michela Becchi, "CAROL: Significantly Improving Fixed-Ratio Compression Framework for Resource-limited Applications", in 53rd International Conference on Parallel Processing (***ACM ICPP2024***), 2024

70. Jiajun Huang, **Sheng Di**, Xiaodong Yu, Zhaiyu Jia, Jinyang Liu, Yafan Huang, Ken Raffenetti, Hui Zhou, Kai Zhao, Xiaoyi Lu, Zizhong Chen, Franck Cappello, Yanfei Guo, Rajeev Thakur, "gZCCL: Compression-Accelerated Collective Communication Framework for GPU Clusters", 38th ACM International Conference on Supercomputing (***ACM ICS2024***), 2024

71. Haotian Xu, Zhaorui Zhang, **Sheng Di**, Benben Liu, Jiannong Cao, "FedFa: A Fully Asynchronous Training Paradigm for Federated Learning", International Joint Conferences on Artificial Intelligence (***IJCAI24***), 2024

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162. Eduardo Berrocal, Leonardo Bautista-Gomez, **Sheng Di**, Zhiling Lan, and Franck Cappello, "Exploring Partial Replication to Improve Lightweight Silent Data Corruption Detection for HPC Applications," in LNCS 22nd International European Conference on Parallel and Distributed Computing (***LNCS Euro-par 2016***), 2016.

163. Omer Subasi, **Sheng Di**, Leonardo Bautista-Gomez, Prasanna Balaprakash, Osman Unsal, Jesus Labarta, Adrian Cristal, Franck Cappello, "Spatial Support Vector Regression to Mitigate Silent Errors in the Exascale Era," in 16th IEEE/ACM International Symposium of Cluster, Cloud and Grid Computing (***ACM CCGrid 2016***), 2016.

164. **Sheng Di**, Franck Cappello, "Fast Error-bounded Lossy HPC Data Compression with SZ," in International Parallel and Distributed Processing Symposium (***IEEE/ACM IPDPS 2016***), Chicago, 2016.

165. Song Wu, Zhenjiang Xie, Haibao Chen, **Sheng Di**, Xinyu Zhao, and Hai Jin, "Dynamic Acceleration of Parallel Applications in Cloud Platforms by Adaptive Time-Slice Control," in International Parallel and Distributed Processing Symposium (***IEEE/ACM IPDPS 2016***), Chicago, 2016.

166. Xinhou Wang, Kezhi Wang, Song Wu, **Sheng Di**, Kun Yang, and Hai Jin, "Dynamic Resource Scheduling in Cloud Radio Access Network with Mobile Cloud Computing, " in 24st International Symposium on Quality of Service (***IEEE/ACM IWQoS 2016***), 2016.

167. **Sheng Di**, Eduardo Berrocal, and Franck Cappello, "An Efficient Silent Data Corruption Detection Method with Error-feedback Control and Even Sampling for HPC Applications," in IEEE/ACM 15th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (***ACM CCGrid2015***), 2015.

168. Eduardo Berrocal, Leonardo Bautista-Gomez, **Sheng Di**, Zhiling Lan, and Franck Cappello, "Lightweight Silent Data Corruption Detection Based on Runtime Data Analysis for HPC Applications," in 24th ACM Symposium on High-Performance Parallel and Distributed Computing (***ACM HPDC2015***), short paper, 2015.

169. Xuanhua Shi, Haohong Lin, Hai Jin, Bingbing Zhou, Zuoning Yin, **Sheng Di** and Song Wu, "GIRAFFE: A Scalable Distributed Coordination Service for Large-scale Systems," in IEEE Proceedings of 16th International Conference on Cluster Computing (***IEEE CLUSTER2014***), Madrid, Spain, 2014, ***best paper nominated***.

170. **Sheng Di**, Leonardo Bautista-Gomez, Franck Cappello, “Optimization of Multi-level Checkpoint Model with Uncertain Execution Scales,” in IEEE/ACM 26th International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2014***), 2014.

171. Haibao Chen, Song Wu, **Sheng Di**, Bingbing Zhou, Zhenjiang Xie, Hai Jin, and Xuanhua Shi, “Communication-Driven Scheduling for Virtual Clusters in Cloud,” in ACM Symposium on High-Performance Parallel and Distributed Computing (***ACM HPDC2014***), short paper, 2014.

172. **Sheng Di**, Mohamed Slim Bouguerra, Leonardo Bautista-Gomez, Franck Cappello, “Optimization of Multi-level Checkpoint Model for Large-scale HPC Applications,“ in International Parallel and Distributed Processing Symposium (***IEEE/ACM IPDPS 2014***), Phoenix, AZ, 2014.

173. **Sheng Di**, Cho-Li Wang, “Minimization of Cloud Task Execution Length with Workload Prediction Errors,“ in International Conference on High Performance Computing (***IEEE/ACM HiPC 2013***), 2013.

174. **Sheng Di**, Yves Robert, Frédéric Vivien, Derrick Kondo, Cho-Li Wang, Franck Cappello, “Optimization of Cloud Service Processing with Checkpoint-Restart Mechanism,” in IEEE/ACM 25th International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2013***), pp. 64:1-64:12, 2013.

175. **Sheng Di**, Derrick Kondo, Cho-Li Wang, “Optimization and Stabilization of Composite Service Processing in a Cloud System,” in 21st International Symposium on Quality of Service (***IEEE/ACM IWQoS 2013***), pp. 41-50, 2013.

176. **Sheng Di**, Cho-Li Wang, Derrick Kondo, Guodong Han, “Towards Payment Bound Analysis for Cloud Systems with Workload Prediction Errors,” in IEEE 6th International Conference on Cloud Computing (***IEEE CLOUD 13***), pp. 502-509, 2013.

177. **Sheng Di**, Derrick Kondo, Franck Cappello, “Characterizing Cloud Applications on a Google Data Center,” in Proceedings of 42th International Conference on Parallel Processing (***IEEE ICPP2013***), 2013.

178. **Sheng Di**, Derrick Kondo, Walfredo Cirne, “Host Load Prediction in a Google Compute Cloud with a Bayesian Model,” in IEEE/ACM 24th International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2012***), 2012.

179. **Sheng Di**, Derrick Kondo, Walfredo Cirne, “Characterization and Comparison of Cloud versus Grid Workloads,” in IEEE Proceedings of 14th International Conference on Cluster Computing (***IEEE CLUSTER2012***), 2012.

180. **Sheng Di**, Cho-Li Wang, Weida Zhang, Luwei Cheng, “Probabilistic Best-fit Multi-dimensional Range Query in Self-Organizing Cloud,” in Proceedings of 40th International Conference on Parallel Processing (***IEEE ICPP2011***), pp. 763-772, 2011.

181. **Sheng Di**, Cho-Li Wang, Luwei Cheng, Ling Chen, “Social-optimized Win-win Resource Allocation for Self-organizing Cloud,” in IEEE International Conference on Cloud and Service Computing (***IEEE CSC2011***), 2011.

182. Zheming Xu, **Sheng Di**, Weida Zhang, Cho-Li Wang, and Luwei Cheng, “WAVNet: Wide-Area Network Virtualization for Elastic Cloud Computing,” in Proc. of 40th International Conference on Parallel Processing (***IEEE ICPP2011***), pp. 285-294, 2011. ***best paper nominated***

183. Luwei Cheng, Cho-Li Wang, **Sheng Di**, “Defeating Network Jitter for Virtual Machines,” in IEEE/ACM International Conference on Utility and Cloud Computing (***IEEE/ACM UCC2011***), 2011. ***best student paper***

184. **Sheng Di** and Cho-Li Wang, “Dual-Phase Just-in-Time Workflow Scheduling in P2P Grid Systems,” in Proceedings of IEEE 39th International Conference on Parallel Processing (***IEEE ICPP2010***), pp.238-247, 2010

185. **Sheng Di** and Cho-Li Wang, “Conflict-minimizing Dynamic Load Balancing for P2P Desktop Grid,” in Proc. of IEEE/ACM 11th International Conference on Grid Computing (***IEEE/ACM Grid2010***), Brussels, Belgium, Oct 24-29, pp. 137-144, 2010.

186. **Sheng Di** and Cho-li Wang, Dexter H. Hu, "Gossip-based Dynamic Load Balancing in Self-organized Desktop Grid," in Proceediings of 10th High-Performance Computing in Asia-Pacific Region (***HPCAsia -27th APAN***), Taiwan, pp. 85-92, 2009.

187. **Sheng Di** and Cho-Li Wang, "Task Scheduling based on Dynamic Critical Task Estimation in P2P Grid Workflow" (in Chinese), in ***CNGridAnnual2009***, pp. 1-8, 2009.

188. Ling Chen, **Sheng Di**, "RSR-CGSF: A Robust Cooperative Grid Service Framework based on Semantic Resource," in Proceedings of ***IEEE ICIECS2009***, pp. 1-4, 2009.

189. Ling Chen, Hai Jin, **Sheng Di**, "A Semantic Double-Buffer Based Approach to Enhance Semantic Web Search," in 2nd International Conference on the Digital Society (***IEEE ICDS2008***), pp. 111-116, 2008. ***best paper award***

190. **Sheng Di**, Hai Jin, Shengli Li, Ling Chen, Li Qi, Chengwei Wang, "Ontology Based Grid Information Interoperation." In 21st International Conf. on Advanced Information Networking and Applications Workshops (***IEEE AINAW2007***), pp. 91-96, 2007.

191. **Sheng Di**, Hai Jin, Shengli Li, Jing Tie, and Ling Chen, "Efficient Time Series Data Classification and Compression for Distributed Monitoring," in Proceedings of 2007 International Workshop on High Performance Data Mining and Applications (***HPDMA2007***, in conjunction with ***LNCS PAKDD2007***), pp. 389-400, 2007.

192. **Sheng Di**, Hai Jin, and Shengli Li, "A Flexible Two-Level Mechanism in Querying and Presenting Large-scale Historical Monitoring Data," in Proceedings of 13rd IEEE Asia-Pacific Conference on Communications (***IEEE APCC2007***), pp. 211-214, 2007.

193. Hai Jin, Chuanjiang Yi, **Sheng Di**, "A Composite-Service Authorization Prediction Platform for Grid Environment," in 4th International Conference on Cooperative Design, Visualization, and Engineering (***LNCS CDVE2007***), pp. 217-22, 2007.

194. **Sheng Di**, Hai Jin, Shengli Li, and Ling Chen, Chengwei Wang, "GlobalWatch: A Distributed Service Grid Monitoring Platform with High Flexibility and Usability," in Asia-Pacific Service Computing Conference (***IEEE APSCC2006***), pp. 440-446, 2006.

Publications – Refereed Posters

195. Md Hasanur Rahman, Sheng Di, Guanpeng Li, and Franck Cappello, "Characterizing Spatial Data Traits for Modeling Generic Lossy Rate-Distortion Quality", in Proceedings of the 39th IEEE International Parallel and Distributed Processing Symposium (***IEEE IPDPS2025***), 2025.

196. Yongfeng Qiu, Yuxiao Li, Xin Liang, Yafan Huang, Guanpeng Li, Sheng Di, Franck Cappello, Hanqi Guo, "Lossy Parallel Visualization of Large-scale Volume Data with Error-bounded Image Compositing", in Proceedings of the 39th IEEE International Parallel and Distributed Processing Symposium (***IEEE IPDPS2025***), 2025.

197. Yuanjian Liu, Sheng Di, Kyle Chard, and Ian Foster, "Ocelot: Distributed Lossy Compression and Data Transfer System", in The Greater Chicago Area Systems Research Workshop (***GCASR***), 2024

198. Jiajun Huang, Sheng Di, Xiaodong Yu, Yujia Zhai, Zhaorui Zhang, Jinyang Liu, Xiaoyi Lu, Ken Raffenetti, Hui Zhou, Kai Zhao, Zizhong Chen, Franck Cappello, Yanfei Guo, Rajeev Thakur, "Optimizing Collective Communications with Error-bounded Lossy Compression for GPU Clusters", Principles and Practice of Parallel Programming (***PPoPP2024***), 2024.

199. Grant Wilkins, Sheng Di, Jon Calhoun, Kibaek Kim, Robert Underwood, Richard Mortier, Franck Cappello, "FedSZ: Leveraging Lossy Compression for Federated Learning Communications", in Proceedings of the 38th IEEE International Parallel and Distributed Processing Symposium (***IEEE IPDPS2024***)

200. Jiajun Huang, Sheng Di, Xiaodong Yu, Yujia Zhai, Jinyang Liu, Yafan Huang, Ken Raffenetti, Hui Zhou, Kai Zhao, Zizhong Chen, Franck Cappello, Yanfei Guo, Rajeev Thakur, "Optimizing Collective Communications with Error- bounded Lossy Compression for GPU Clusters", Principles and Practice of Parallel Programming (***IEEE PPoPP2024***), 2024.

201. Arham Khan, Sheng Di, Kai Zhao, Jinyang Liu, Kyle Chard, Ian Foster, Franck Cappello, "An Efficient and Accurate Compression Ratio Estimation Model for SZx", in IEEE International Conference on Cluster Computing(***IEEE CLUSTER2023***), 2023.

202. Avinash Kethineedi, Jon C. Calhoun, Robert Underwood, Sheng Di, Franck Cappello, "ROI Preservation in Streaming Lossy Compression", IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2023***), 2023.

203. Milan Shah, Xiaodong Yu, Sheng Di, Franck Cappello, Michela Becchi, "Compressing Quantum Circuit Simulation Tensor Data," in IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2022***), 2022.

204. Dingwen Tao and Sheng Di. "Collaborative Research: HyLoC: Objective-driven Adaptive Hybrid Lossy Compression Framework for Extreme-Scale Scientific Applications," in Fifth ACSIC Symposium on Frontiers in Computing (***SOFC 2022***), null, August 5, 2022-August 6, 2022.

205. Yafan Huang, Shengjian Guo, Sheng Di, Guanpeng Li, Franck Cappello, "Hardening Selective Protection across Multiple Program Inputs for HPC Applications," in Principles and Practice of Parallel Programming (***PPoPP2022***), 2022.

206. Xin-Chuan Wu, Sheng Di, Franck Cappello, Hal Finkel, Yuri Alexeev, Frederic T. Chong, “Full State Quantum Circuits Simulation by Using Data Compression,” in IEEE/ACM 29th International Conference for High Performance Computing, Networking, Storage and Analysis (***IEEE/ACM SC2018***).

207. Sihuan Li, Sheng Di, Xin Liang, Zizhong Chen, Franck Cappello, “Improving Error-bounded Compression for Cosmological Simulation,”in IEEE/ACM 29th International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2018***).

208. Sheng Di, Dingwen Tao, Hanqi Guo, Zizhong Chen, Franck Cappello, “Towards Efficient Error-controlled Lossy Compression for Scientific Data,” in Greater Chicago Area Systems Research Workshop (***GCASR17***), 2017.

209. Ali Murat Gok, Dingwen Tao, Sheng Di, Vladimir Mironov, Yuri Alexeev, Franck Cappello, “PaSTRI: A Novel Data Compression Algorithm for Two-Electron Integrals in Quantum Chemistry,” in IEEE/ACM 29th International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2017***).

210. Xuanhua Shi, Junling Liang, Sheng Di, Bingsheng He, Hai Jin, Lu Lu, Zhixiang Wang, Xuan Luo, and Jianlong Zhong, “Optimization of Asynchronous Graph Processing on GPU with Hybrid Coloring Model,” in 20th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (***PPoPP2015***), 2015.

211. Sheng Di, Eduardo Berrocal, Leonardo Bautista-Gomez1, Katherine Heisey, Rinku Gupta1, Franck Cappello, ”Towards Effective Detection of Silent Data Corruptions for HPC Applications,” in IEEE/ACM 26th International Conference for High Performance computing, Networking, Storage and Analysis (***IEEE/ACM SC2014***), 2014.

Reports

- 2011, Aug. 22-23, **Final-check Report** for HKU-Grid project, on behalf of System Research Group of The University of Hong Kong, Beijing (Peking), China.
- 2011, Jan. 12-13, **Stage Report** of the development progress for HKU-Grid project, on behalf of System Research Group of The University of Hong Kong, Beiijng (Peking), China.
- 2010, July. 29-Aug. 1, **Stage Report** of the development progress for HKU-Grid, on behalf of System Research Group of The University of Hong Kong, at Xilinhot, Inter Mongolia, China.
- 2008, Dec.18-20, **Stage Report** of development progress for HKU-Grid project, on behalf of System Research Group of The University of Hong Kong, at Shanghai, China.
- 2008, July 24-25, **Stage Report** of the development progress for HKU-Grid project, on behalf of System Research Group of The University of Hong Kong, at Wuxi, Jiangsu, China.
- 2008, June 22-25, **Stage Report** of the development progress for HKU-Grid project, on behalf of System Research Group of The University of Hong Kong, at Beijing (Peking), China.

- 2007, July 24-25, **Stage Report** of the development progress for HKU-Grid project, on behalf of System Research Group of The University of Hong Kong, at Beijing (Peking), China.

Invited Presentations/Talks

- 2024, July 22, CoDAC Correct Data Compression workshop, Montreal, Canada.
- 2024, April 16th, Joint Laboratory for Extreme-Scale Computing (JLESC) workshop, Japan.
- 2023, March 02, SIAM Conference on Computational Science and Engineering (CSE23), Netherlands.
- 2023, Feb 15, 'Compression for Scientific Applications', BOF session on ECP Annual meeting, Virtual meeting.
- 2023, Feb 07, 'New stories about Lossy Compression for Scientific Datasets', CS Seminar Series, MCS Division, Argonne National Laboratory.
- 2022, Dec 16, 'Compression session' of 13th Joint Laboratory for Extreme-Scale Computing (JLESC) workshop, Virtual meeting.
- 2022, Jan. White paper presentation "Boosting Scientific Data Access with Usage-Driven Lossy Compression." ASCR Workshop on the Management and Storage of Scientific Data.
- 2022, 04/15. 'Breakout session on data reduction for ECP Applications' section in ECP annual meeting.
- 2022, 09/29. 'Compression session' of 14th Joint Laboratory for Extreme-Scale Computing (JLESC) workshop, NCSA.
- 2022, 08/30. "Scalable Dynamic Scientific Data Reduction," DOE Computer Graphics Forum (DOECGF 2022).
- 2021, April, 'Lossy Data Reduction for ECP Applications' session in ECP annual meeting, Virtual meeting.
- 2021, April, 'ECP Community BOF: Tools for Data-driven Analysis and Improvement of HPC Scientific Software Development,' Virtual meeting.
- 2021, Feb., Joint Laboratory for Extreme-Scale Computing (JLESC) workshop, Virtual meeting.
- 2019, Nov. Tutorial speaker in Compression for Scientific Data at Supercomputing (SC19), 2019, Denver, CO.
- 2019, Oct, Invited talk at Illinois Institute of Technology (IIT), Chicago, USA.
- 2019, Oct, Invited talk at Wayne State University (WSU), Detroit, USA.
- 2019, April, t Joint Laboratory for Extreme Scale Computing (JLESC) workshop, Tennessee, Knoxville, TN.
- 2019, March, ECP CODAR all-hands meeting in ORN, TN.
- 2019, March, ECP Exasky all-hands meeting in Santa Fe, NM.
- 2018, June 18-20, 13th Scheduling for Large Scale Systems workshop, Berkeley, CA.
- 2017, July, Joint Laboratory for Extreme-Scale Computing (JLESC) workshop, Champaign, USA.
- 2016, Dec., I Joint Laboratory for Extreme-Scale Computing (JLESC) workshop, Kobe, Japan.
- 2016, Nov. Youth Workshop, Kobe, Japan.
- 2016, Sept. 15, Fault Tolerant Systems workshop, in conjunction with IEEE CLUSTER conference, Taipei, Taiwan.
- 2013, Nov. 25-27, 10th Workshop of the INRIA-Illinois Joint Laboratory on Petascale Computing, UIUC, USA.

- 2013, June 12-14, 9th Workshop of the INRIA-Illinois Joint Laboratory on Petascale Computing, Lyon, France.
- 2012, Nov. 19-22, Google (Mountain View, California), USA.

Seminars and Colloquia

- 2024, May 29, Stevens Institute of Technology (SIT), New Jersey, USA.
- 2016, June, Huazhong University of Science and Technology, Wuhan, China.
- 2016, May 5, Hubei University of Technology, Wuhan, China.
- 2016, March, Los Alamos National Laboratory (LANL), Los Alamos, CA.
- 2014, November 25, 2nd Joint Lab of Extreme-Scale Computing (JLESC) Workshop, Chicago, IL.
- 2014, May 8, Argonne National Laboratory, Lemont, IL.
- 2014, April 2, University of California – Merced, Merced, CA.
- 2014, Feb. 11, Huazhong University of Science and Technology, Wuhan, China.
- 2014, Jan. 24, Shenzhen Institutes of Advanced Technology, Shenzhen, China.
- 2014, Jan. 23, The University of Hong Kong, Hong Kong, China.

Other Presentations: Talks

- 2019: IEEE MSST2019, IEEE DSN2019
- 2018: DRBSD-4
- 2016: IEEE IPDPS2016, DRBSD-2
- 2014: IEEE IPDPS2014, IEEE/ACM SC20142013: IEEE ICPP2013, IEEE CLOUD2013, IEEE/ACM IWQoS2013, IEEE/ACM SC2013, IEEE/ACM HiPC2013
- 2012: IEEE CLUSTER2012, IEEE/ACM SC2012
- 2011: IEEE ICPP2011, IEEE CSC2011
- 2010: IEEE/ACM Grid2010, IEEE ICPP2010
- 2009: CNGridAnnual2009, HPCAsia -27th APAN
- 2007: PAKDD2007
- 2006: IEEE APSCC2006

Editorial Board of Journal

- Editorial Board Member, Frontiers in High Performance Computing Journal.
- Review Board Member, Transactions on Parallel and Distributed Systems (TPDS)

Organization of Conferences/Workshops

- **Steering Committee Member**: International Workshop on Data Analysis and Reduction for Big Scientific Data (DRBSD-10), in conjunction with SC2024.
- **Steering Committee Chair**: 5th International Workshop on Big Data Reduction (IWBDR2025), in conjunction with IEEE Bigdata conference, 2025.
- **Program Committee Member**: IEEE Cloud Summit Conference (IEEE Cloud-Summit), 2025.
- **Program Committee Member**: IEEE International Conference on Cluster Computing (IEEE CLUSTER-2025), 2025.

- **Program Committee Member**: International Conference on Supercomputing (ACM ICS2025), 2025.
- Review Committee Board Member: DOE-SBIR-STTR FOA, 2024.
- **Organizing Committee Member:** International Workshop on Data Analysis and Reduction for Big Scientific Data (DRBSD-10), in conjunction with SC2024, 2024.
- **Research ACM SRC Poster Member:** IEEE/ACM International Conference for High Performance computing, Networking, Storage and Analysis (SC2024), 2024.
- **Program Committee Member:** IEEE International Conference on High Performance Computing , Data, and Analytics (IEEE HiPC2024), 2024.
- **Program Committee Member**: IEEE/ACM International Parallel & Distributed Processing Symposium (IPDPS24), 2024.
- **Program Co-chair**: 4th International Workshop on Big Data Reduction (IWBDR2023), in conjunction with IEEE Bigdata conference, 2023.
- **Steering Committee Member:** International Workshop on Data Analysis and Reduction for Big Scientific Data (DRBSD-9), in conjunction with SC2023, 2023.
- **Program Committee Member:** ACM High Performance Parallel and Distributed Computing (HPDC2023), 2023.
- **Review Committee Board Member**: DOE Data Visualization FOA, 2022.
- **Program Committee Member**: IEEE/ACM International Conference for High Performance computing, Networking, Storage and Analysis (SC2022), 2022.
- **Program Co-chair**: 3rd International Workshop on Big Data Reduction (IWBDR2022), in conjunction with IEEE Bigdata conference, 2022.
- **Program Chair**: International Workshop on Data Analysis and Reduction for Big Scientific Data (DRBSD-8), in conjunction with SC2022.
- **Program Committee Member**: 51st International Conference on Parallel Processing (ICPP2022), 2022.
- **Review Committee Board Member**: DOE Early Career Research Program (ECRP), 2022.
- **Program Committee Member**: 36th IEEE International Parallel and Distributed Processing Symposium (IPDPS 2022), 2022.
- **Program Co-chair**: 2nd International Workshop on Big Data Reduction (IWBDR2021), in conjunction with IEEE Bigdata conference, 2021.
- **Program Committee Member:** IEEE Special Section on Parallel and Distributed Computing Techniques for AI, ML, and DL (IEEE TPDS-SS-AI 2021), 2021.
- **Program Committee Member:** IEEE 2021 International Conference on Machine Learning and Applications (IEEE ICMLA2021), 2021.
- **Program Committee Member:** IEEE International Conference on Big Data (IEEE Bigdata2021), 2021.
- **Program Committee Member:** 18th IEEE Workshop on Silicon Errors in Logic -- System Effects (SELSE2021), 2021.
- **Program Committee Member**: IEEE Transactions on Parallel and Distributed Systems (IEEE TPDS) Special Section on Parallel and Distributed Computing Techniques for AI, ML and DL (IEEE TPDS-SS-AI 2020).
- **Program Committee Member**: International Workshop on Data Analysis and Reduction for Big Scientific Data (DRBSD-5), in conjunction with SC2020.
- **Program Committee Member**: IEEE International Conference on High Performance Computing , Data, and Analytics (IEEE HiPC2020), 2020.

- **Program Committee Member (Data, Storage, and Visualization track and poster section)**: IEEE International Conference on Cluster Computing (IEEE CLUSTER-2020), 2020
- **Program Committee Member**: IEEE Asia-Pacific Services Computing Conference (APSCC 2019), 2019.
- **Program Committee Member**: IEEE Congress on BigData, 2019.
- **Program Committee Member**: IEEE International Conf. on SmartData (SmartData), 2019.
- **Program Committee Member**: IEEE Asia-Pacific Services Computing Conference (APSCC 2018), 2018.
- **Track Chair/Program Committee Member**: IEEE BigData Congress, USA, July, 2018.
- **Program Committee Member** [poster session]: IEEE/ACM International Conference for High Performance Computing, Networking, Storage and Analysis (SC'18), 2018.
- **Program Committee Member**: 32nd IEEE International Parallel and Distributed Processing Symposium (IPDPS'18), 2018.
- **Program Committee Member**: 18th IEEE/ACM International Symposium of Cluster, Cloud and Grid Computing (CCGrid'17), 2017.
- **Program Committee Member**: IEEE Workshop on Fault Tolerant Systems (FTS 2017), in conjunction with IEEE CLUSTER 2017.
- **Program Committee Member:** IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid17), 2017.
- **Program Chair**: IEEE Workshop on Fault Tolerant Systems (FTS 2016), in conjunction with IEEE CLUSTER 2016.
- **Program Committee Member:** IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid16), 2016.
- **Program Committee Member**: IEEE fourth International Workshop on Cloud Computing Interclouds, Multiclouds, Federations, and Interoperability (IEEE Intercloud'15)
- **Organizing Chair**: Postdoc-Ph.D-Student Session at JLESC Workshop, Chicago, November 24-26th, 2014.
- **Program Committee Member**: 5th International Conference on Scalable Information Systems (Infoscale2014), Seoul, South Korea, 2014.
- **Program Committee Member**: Asia-Pacific Services Computing Conference (APSCC-2014), 2014.
- **Program Committee Member**: 6th IEEE International Conference on Cloud Computing Technology and Science (CloudCom-2014), 2014.
- **Program Committee Member**: International Workshop on Mobile Internet Big Data, Wuhan, 2014.
- **Program Committee Member**: IEEE International Workshop on Advanced Technologies of Cloud Computing, IWATCC14, 2014.
- **Program Committee Member**: IEEE International Conference on Services Computing (SCC-2014), 2014.
- **Program Committee Member**: IEEE Third International Workshop on Cloud Computing Interclouds, Multiclouds, Federations, and Interoperability (IEEE Intercloud'14).
- **Program Committee Member**: The 8th International Conference on Complex, Intelligent, and Software Intensive Systems (CISIS 2014), Birmingham, UK.
- **Program Committee Member**: The 5th IEEE International Conference on Cloud Computing Technology and Science (CloudCom-2013).
- **Program Committee Member**: The 27th IEEE International Conference on Advanced Information Networking and Applications (AINA-2013)

- **Program Committee Member**: The 4th IEEE International Conference on Cloud Computing Technology and Science (CloudCom-2012).
- **Program Committee Member**: IEEE Asia Pacific Cloud Computing Conference, 2012 (APCloud-2012).
- **Local Organizing Committee member**: PRAGRMA Confeference 2011**.**
- **Local Organizing Committee member**: The 6th OMII-CNGrid Training 2008.

Patent

- Hai Jin, Pingpeng Yuan, Li Huang, Feng Mao, **Sheng Di**, Sheng Sun, Shilun Yuan, Changqin Li, Yanxia Li, Qin Shi: "Grid Data Transmission Platform with High QoS and Multi-replica," NO. 200610125570.9, 2006 (in Chinese).

Major Software (all available to download for free)

- **Libpressio** (Co-designer): A library to abstract between different lossless and lossy compressors. https://github.com/robertu94/libpressio
- **MMD-SZ** (Core Developer): Error-bounded lossy compressor customized for molecular dynamics datasets. https://github.com/szcompressor/MMD-SZ
- **Interp-SZ** (Core Developer): Interpolation-based error-bounded lossy compressor. https://github.com/szcompressor/SZ3
- **SZx** (Core developer): Ultra-fast error-bounded lossy compressor. https://github.com/szcompressor/SZx
- **Libpressio** (Co-developer): https://github.com/robertu94/libpressio
- **QCAT** (Core Developer): Quick Compression Analysis Toolkit. https://github.com/szcompressor/qcat
- **cuSZp/cuSZp2** (Co-developer): https://github.com/szcompressor/cuSZp
- **FZ-GPU** (Co-developer) A Fast and High-Ratio Lossy Compressor for Scientific Data on GPUs: https://github.com/szcompressor/FZ-GPU
- **kSZ** (Co-developer): Kokkos-based error-bounded lossy compressor for scientific data. https://github.com/szcompressor/kokkosSZ
- **cuSZ** (Co-developer): CUDA-Based Error-bounded lossy compressor for scientific data. https://github.com/szcompressor/cuSZ/
- **SZ** (Core Developer): Error-bounded high-performance computing in situ data compressor. http://github.com/szcompressor/SZ
- **H5Z-SZ** (Core Developer): HDF5 filter for SZ compressor. https://github.com/disheng222/H5Z-SZ
- **PnetCDF-SZ** (Core Developer): Integration of SZ compression into PnetCDF. https://github.com/Parallel-NetCDF/PnetCDF-SZ
- **GloudSim** (Core Developer): Google trace-based cloud simulator with virtual machines https://code.google.com/p/gloudsim/ (source code has been moved to https://github.com/nThanksForAllTheFish/gloudsim).
- **Z-checker** (Core Developer): Exascale scientific data analysis library with lossy compression https://github.com/CODARcode/Z-checker
- **Z-checker-installer** (Core Developer): One-command installation for Z-checker and all dependencies. https://github.com/CODARcode/z-checker-installer
- **AID** (Core developer): Adaptive Impact-driven detector (for detecting SDC on HPC environment) https://collab.cels.anl.gov/display/ESR/AID

- **LogAider** (Core developer): Tool for mining potential correlations in HPC system logs https://github.com/disheng222/LogAider

Selected Projects

- **NSF CSSI SGCC,** Collaborative Research: Elements: SGCC: An Efficient GPU-oriented Data Reduction Cyberinfrastructure for Scientific Data Analysis, 2025~2028, $240k.
- **DOE ZF,** A novel framework to design trustworthy lossy compressors for scientific data approaching lossy compressibility limits, 2024-2027.
- **DOE ASCR SR-APFFL**, Distributed resilience project: Scalable and Resilient Modeling for Federated-Learning-Based Complex Workflows, 2023~2028, $4.35M.
- **NSF FZ,** Collaborative Research: Frameworks: FZ: A fine-tunable cyberinfrastructure framework to streamline specialized lossy compression development (PI: Franck Cappello), 2023-2028, $3.14M
- **DOE ASCR Data Reduction**, 2021-2024, co-PI: Automatic Generation of Algorithms for High-Speed Reliable Lossy Compression.
- **NSF CSSI ROCCI**, 2021-2024, PI: Elements: ROCCI: Integrated Cyberinfrastructure for In Situ Lossy Compression Optimization Based on Post Hoc Analysis Requirements, $320K.
- **DOE ASCR SDR (Early Career Research Program Award)** , 2021-2026, PI: Scalable Dynamic Scientific Data Reduction: $2.5M.
- **NSF CDS&E HyLoC**, 2020-2023, PI: Objective-driven Adaptive Hybrid Lossy Compression Framework for Extreme-Scale Scientific Application, $300K.
- **ECP VeloC-SZ (DOE project),** 2019-2023: Senior personnel, research and technical lead and key developer. Very-Low Overhead Checkpointing System and Error-bounded Lossy Compression for Scientific HPC Datasets.
- **ECP Exasky (DOE project)**, 2016–2023: Senior personnel, key developer of compression modules. Exploring a set of very efficient compression techniques for Cosmology simulation.
- **ECP EZ (DOE project)**, 2016–2019, Technical lead and key developer: Development of an effective, efficient, generic lossy compressor for significantly reducing the scientific data for scientists.
- **ECP CODAR (DOE project)**, 2016–2019: Senior personnel, research and technical lead and developer. Exploration of the characteristics of the data regarding data compression, and developing methodologies and tools (software) to assess the lossy compression error and its impact on application data.
- **Catalog Project (DOE project)**, 2015–2019, Core developer of the related analysis software (LogAider) and key researcher on the system log analysis: In-depth characterization and analysis of the errors, failures and faults for large-scale (or exascale) supercomputing environments.
- **ALETHEIA**, 2016-2019, Co-PI: Exploration of how to design and implement end-to-end SDC detection when scientific applications are compressing their datasets with lossy compressors and storing the result on storage systems.
- **PARIS**: Data-knowledge based Extreme-Scale Resilience, 2013–2016: Key developer. I explored fundamental properties of numerical science applications to improve the resilience of extreme-scale executions and to provide efficient solutions to system failures and silent data corruptions.
- **AMFT Project,** 2012–2015: Key developer. I exploited new check-pointing technologies (Fault Tolerant Interface, FTI) and Multilevel Fault Tolerance (MFT) in combination with different storage levels and technologies, in the context of resilience of HPC.
- **Predicting Idleness of Data Centers**, 2012–2013 (Google Research Award): I built a model to predict workload/hostload for Google data centers.

- **Cloud@HOME**, 2012–2013 (funded by the national French science foundation for running complex services over unreliable Internet resourcesI optimized and stabilized a best-suited queuing policy and a virtual resource allocation scheme.
- **Desktop Cloud / Self-organizing Cloud**, 2010-2011 (supported by Hong Kong grants): I developed a set of core optimization algorithms with fully distributed resource discovery protocols.
- **CNGrid**, 2007-2011 (key national project under the High-Tech R&D Program in China): I was mainly in charge of the construction and development of HKU-Grid Point, one of the key Grid points along with other nine ones.
- **SemREX**, 2006-2008 (funded by China-973 Project of National Basic Research and Development Plan): I co-designed and co-developed the relationship-searching engine.
- **CGSV (ChinaGrid SuperVision)**, 2005-2006 (Sponsored by HP Inc. providing real-time monitoring support for ChinaGrid): I helped design its whole architecture, developing a graphic user interface and archive module.
- **GPE4CGSP(Sponsored by Intel)**, 2006: I analyzed the code of GPE and developed a middleware to integrate the Information Center of CGSP and that of GPE, supported by a GUI as well.
- **CGSP(ChinaGrid Supported Platform)**, 2005-2006 (the biggest grid project in China): I devised a GUI to display its key information, such as jobs, applications, and services and provided web service interfaces with Geo-Information System support and security support..
- **CoGIS**, 2004-2005: I integrated it with the GlobalWatch system and installed and administered Globus, GridFTP, and debugging a Dynamic Replica Transmission platform.
- **GlobalWatch (a distributed monitoring system)**, 2004-2005: I developed the server and client software with another developer.

Mentoring/Co-mentoring

- 07/2025-present: Abdullah Naveed, Ph.D student from University of Iowa, USA.
- 05/2025-present: Bohan Zhang, Ph.D student from University of Iowa, USA.
- 05/2025-present: Ben Jong, Bachelor student from Elmhurst University, IL, USA.
- 05/2025-present: Youyuan Liu, Ph.D student from Temple University.
- 05/2025-present: Bo Jiang, Ph.D student from Temple University.
- 02/2025-present: Yuke Li, Ph.D student from University of California, Merced.
- 12/2024-present: Zhuoxun Yang, Ph.D student from Florida State University.
- 05/2024-present: Shixun Wu, Ph.D student from University of California, Riverside.
- 02/2024-present: Longtao Zhang, Ph.D student from Florida State University.
- 02/2024-present: Congrong Ren, Ph.D student from Ohio State University.
- 05/2024-present: Xuan Wu, Ph.D student from University of Kentucky.
- 05/2024-present: Ammar Ahmed, Ph.D student from University of Minnesota.
- 01/01/2024-present: Khondoker Mumenin, Ph.D student from University of North Carolina at Charlotte.
- 2023-present: Boyuan Zhang, Ph.D student from Indiana University.
- 05/2024-12/2024: Harvey Dam, Ph.D student from University of Utah.
- 2023-present: Alexandra Poulos, Ph.D student from Clemson University.
- 2023-present: Shihui Song, Ph.D student from University of Iowa.
- 2023-present: Shan Huang, Ph.D student from Stevens Institute of Technology.

- 2023-present: Weijin Liu, Ph.D student from Stevens Institute of Technology.
- 2023-present: Mingze Xia, Ph.D student from University of Kentucky
- 01/01/2023-12/31/2023: Di Zhang, Ph.D student from University of North Carolina at Charlotte.
- 06/2021-present: Yuanjian Liu, Ph.D student from University of Chicago
- 07/01/2023-present: Grant Wilkins, Ph.D student from Clemson University.
- 09/01/2023-present: Ning Yan, Ph.D student from Georgia State University.
- 07/01/2023-present: Darren Ng, Ph.D student from University of California, Merced.
- 06/01/2023-present: Tripti Agarwal, Ph.D student from University of Utah.
- 06/01/2023-2024: Tri Nguyen, Ph.D student from NC State University.
- 01/01/2023-present: Zizhe Jian, Ph.D student from University of California, Riverside.
- 10/01/2022-present: Pu Jiao, Ph.D student from University of Kentucky.
- 10/01/2022-2024: David Krasowska, Ph.D student from Clemson University.
- 10/01/2022-2024: Arkaprabha Ganguli, Ph.D student from Clemson University..
- 10/01/2022-present: Milan Shah, Ph.D student from NC State University.
- 10/01/2022-2025: Jiajun Huang, Ph.D student from University of California, Riverside.
- 10/01/2022-present: Baixi Sun, Ph.D student from Indiana University.
- 10/01/2022-present: Arham Khan, Ph.D student from University of Chicago.
- 09/01/2021-present: Md Hasanur Rahman, Ph.D student from University of Iowa
- 07/01/2021-present: Yafan Huang, Ph.D student from University of Iowa.
- 06/2020~2024: Jinyang Liu, Ph.D student from University of California, Riverside.
- 03/2020~2023: Khalid Alharthi, Ph.D student from The University of Warwick, UK.
- 08/2019~2024: Jiannan Tian, Ph.D student from Washington State University.
- 01/2021~2024: Sian Jin, Ph.D student from Washington State University.
- 06/15/2022-10/01/2022: Zhaoyuan Su, Ph.D student from George Mason University.
- 07/01/2021-10/01/2022: Ruiwen Shan, Ph.D student from Clemson University.
- 06/01/2020-10/01/2022: Cody Rivera, Bachelor's degree student from University of Alabama.
- 05/2020-10/2021, Griffin Dube, Ph.D student from Clemson University.
- 06/2020-06/2021: Zhiheng Chen, Bachelor student from University of California San Diego.
- 06/2019~2022: Robert Underwood, PhD student from Clemson University.
- 06/2019~08/2022: Kai Zhao, Ph.D student from University of California, Riverside.
- 06/2019~12/2019: Tasmia Reza, Ph.D student from Clemson University.
- 06/2017~2019: XinChuan (Ryan) Wu, Ph.D student from University of Chicago.
- 06/2017~05/2021: Sihuan Li, Ph.D student from University of California, Riverside.
- 02/2017~01/2020: Xin Liang, Ph.D student from University of California, Riverside.
- 05/2017~03/2021: Ali M. Gok, Ph.D student at Northwestern University, Chicago.
- 06~09/2016: Dingwen Tao, Ph.D student at University of California, Riverside.
- 2015: Omer Subasi, Ph.D .student at Barcelona Supercomputing Center (BSC), Spain.
- 2015: Eduardo Berrocal, Ph.D student, Illinois Institute of Technology (IIT).
- 2013: Haibao Chen, Ph.D student, Huazhong University of Science and Technology (HUST), China.

- 2012–2013: Xinhou Wang, Ph.D student, Huazhong University of Science and Technology (HUST), China.
- 2010–2011: Hao Liu, Master's degree student at The University of Hong Kong, China.
- 2009–2011: Zheming Xu, Master's degree student at The University of Hong Kong, China.

Teaching Assistant, HKU

- 2010–2011: Principles of Operating Systems
- 2008–2009: Principles of Operating Systems
- 2007–2008: Java-Based Object-Oriented Programming .

Invited External Reviewer

- IEEE/ACM International Parallel & Distributed Processing Symposium (IPDPS24), 2024.
- IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid), 2024.
- Future Generation Computer Systems (FGCS), 2024.
- Journal of Parallel Distributed Computing (JPDC), 2024.
- Kansas NSF EPSCoR, (NSF proposal), 2024
- IEEE Transactions on Visualization and Computer Graphics (IEEE TVCG2023) (2 papers)., 2023.
- Transactions on Parallel and Distributed Systems (IEEE TPDS) journal (5 papers), 2023.
- Frontier in High Performance Computing (Journal), 2023.
- IEEE Visualization (IEEE Vis) 2023.
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2022.
- IEEE/ACM International Parallel & Distributed Processing Symposium (IPDPS22), 2022.
- Journal of Computational Science (JOCSCI), 2022.
- IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid22), 2022.
- International Journal of High Performance Computing Applications (IJHPCA), 2022.
- Best paper nominated: 40th International Conference on Parallel Processing (IEEE ICPP), 2022.
- Journal of Concurrency and Computation: Practice and Experience (CCPE), 2022.
- IEEE 2021 International Conference on Machine Learning and Applications (IEEE ICMLA2021), 2021.
- IEEE Special Section on Parallel and Distributed Computing Techniques for AI, ML, and DL (IEEE TPDS-SS-AI 2021), 2021.
- The International Journal of High Performance Computing Applications (IJHPCA), 2021.
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2021.
- IEEE Transactions on Cloud Computing (TCC), 2021.
- Journal of Information Sciences, 2021.
- Journal of Mathematical Problems in Engineering (MPE), 2020.
- IEEE Transactions on Smart Grid, 2020.
- IEEE SmartDataService conference, 2020.
- ACM Computing Surveys (CSUR), 2020.
- International Conference on High Performance Computing (IEEE/ACM HiPC 2020).

- IEEE International Conference on Cluster Computing (IEEE CLUSTER-2020), 2020.
- IEEE Transactions on Parallel and Distributed Systems (TPDS), special section on Parallel and Distributed Computing Techniques for AI, ML and DL, 2020.
- IEEE Transactions on Parallel and Distributed Systems (TPDS), regular track, 2020.
- International Journal of Electrical Power & Energy Systems (IJEPES), 2020.
- Springer Peer-to-Peer Networking and Applications (PPNA2020), 2020.
- SIAM Journal on Scientific Computing, 2019.
- Springer Peer-to-Peer Networking and Applications (PPNA2019, 2019.
- International Conference on Parallel Processing (ICPP2019), 2019.
- IEEE International Conference on Smart Data (SmartData-2019), 2019.
- ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC), 2019.
- IEEE congress on BigData, 2019.
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2019.
- ACM Transactions on Parallel Computing (TOPC), 2019
- IEEE International Conference on Cluster Computing (IEEE CLUSTER-2019), 2019.
- LNCS Asia-Pacific Services Computing Conference (APSCC2018), 2018.
- Journal of Concurrency and Computation: Practice and Experience (CCPE), 2018.
- International Conference on Parallel Processing (ICPP18), 2018.
- IEEE Cluster conference [poster], 2018.
- IEEE congress on BigData, 2018.
- Journal of Supercomputing, 2018.
- Future Generation System Computing (FGCS), 2018.
- Elsevier Computer Physics Communications (CPC), 2018.
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2018.
- International Workshop of Fault Tolerant Systems (FTS17), 2017.
- The International Journal of High Performance Computing Applications (IJHPCA), 2017
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2017.
- International Conference on Cluster Computing (IEEE CLUSTER-2017), 2017.
- IEEE Transactions on Services Computing (TSC'17), 2017.
- IEEE/ACM International Symposium of Cluster, Cloud and Grid Computing (CCGrid'17), 2017.
- International Parallel and Distributed Processing Symposium (IPDPS17), 2017.
- IIS. Journal of Information Science and Engineering, 2016.
- elsevier Journal of Parallel Computing (PARCO), 2016
- ACM International Conference on Supercomputing (ICS'16), 2016.
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2016.
- IEEE International Symposium on ACM High Performance Parallel and Distributed Computing (HPDC'16), 2016.
- IEEE/ACM International Symposium of Cluster, Cloud and Grid Computing (CCGrid'16), 2016.
- IEEE International Parallel and Distributed Processing Symposium (IPDPS'16), 2016.
- Journal of Knowledge based Systems (KBS), 2015.
- IEEE Transactions on Services Computing (TSC), 2015.

- International Conference on Cloud Computing and Big Data (CCBD), 2015.
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2015.
- The 12th Annual IFIP International Conference on Network and Parallel Computing (NPC15), 2015.
- The Computer Journal, 2015.
- Journal of Parallel Distributed and Computing (JPDC), 2015.
- Journal of Software: Practice and Experience (SPE), 2015.
- IEEE Systems Journal (SJ), 2015.
- International Conference on Cluster Computing (IEEE CLUSTER-2015), 2015.
- International Journal of Future Generation Computer Systems (FGCS), 2015.
- International ACM Symposium on High Performance Parallel and Distributed Computing (HPDC15), 2015.
- elsevier Journal of Systems and Software (JSS), 2015.
- IEEE International Workshop on Cloud Computing Interclouds, Multiclouds, Federations, and Interoperability (Intercloud 2015), 2015.
- Journal of Mathematical Problems in Engineering (MPE), 2015.
- IEEE Transactions on Cloud Computing (TCC2015), 2015.
- IEEE/ACM International Parallel & Distributed Processing Symposium (IPDPS15), 2015.
- International Journal of Future Generation Computer Systems (FGCS), 2014
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2014.
- IEEE/ACM The International Conference for High Performance computing, Networking, Storage and Analysis (SC2014), 2014.
- IEEE Transactions on Cloud Computing (TCC), 2014.
- Journal of Computer Science and Technology (JCST), 2014.
- IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid14)
- KSII Transactions on Internet and Information Systems (TIIS), 2014.
- IEEE/ACM International Parallel & Distributed Processing Symposium (IPDPS14), 2014.
- IEEE Transactions on Cloud Computing (TCC), 2013.
- IEEE/ACM International Parallel & Distributed Processing Symposium (IPDPS13), 2013.
- IEEE Transactions on Parallel and Distributed Systems (TPDS), 2013.
- Journal of Zhejiang University, 2013.
- KSII Transactions on Internet and Information Systems (TIIS), 2013.
- International Journal of Future Generation Computer Systems (FGCS), 2013.
- International Conference on Networking and Grid Cloud Computing (ICNGCC-2013).
- International Journal of Peer-to-Peer Networking and Applications (PPNA), 2013.
- International Journal of Automated Software Engineering (ASE), 2013.
- IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid13), 2013.
- International Journal of Scientific Research and Essays, 2012.
- International Journal of Computational Science and Engineering, 2012.
- Cloud Computing (CloudCom11), 2011.
- International Conference on Services Computing (SCC11), 2011.

- Heterogeneity in Computing Workshop (HCW11) in conjunction with IPDPS11, 2011.
- International Conference on Parallel Processing (ICPP11), 2011.
- IEEE/ACM International Parallel & Distributed Processing Symposium (IPDPS11), 2011.
- CNGrid Annual Conference 2009/2010/2011
- Heterogeneity in Computing Workshop (HCW10) in conjunction with IEEE/ACM IPDPS10, 2010.
- Journal of Computer Science and Technology (JCST), 2010.
- IEEE 4th International Conference on Cloud Computing (Cloud10), 2010.
- IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid10), 2010.
- International Conference on Parallel and Distributed Computing (ICPADS09), 2009.
- IEEE International Conference on Cluster Computing (IEEE Cluster09), 2009.
- High Performance Computing Asia (HPCAsia09), 2009.
- IEEE/ACM International Symposium on Cluster, Cloud, and Grid Computing (CCGrid09), 2009.
- Journal of Parallel Distributed and Computing (JPDC 2008), 2008.
- IEEE Transaction on Computers (TC), 2008.