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个人简介

陶鼎文，男，汉族，**1990** 年生，博士，副教授，博士生导师。**2013** 年获中国科学技术大学学士学位，**2018** 年获美国加州大学河滨分校博士学位。现执教于美国著名“公立常春藤”大学印第安纳大学信息计算与工程学院，并担任该校高性能计算和大数据分析实验室主任，目前独立指导 **10** 名博士生。曾任职于美国华盛顿州立大学、阿拉巴马大学计算机系，以及美国能源部多所国家实验室。主要研究方向为高性能计算和并行计算，同时涉及大数据分析、机器学习等领域，特别是高性能计算与分布式深度学习的交叉。获 **2023** 年 **NSF CAREER Award**、**2022** 年 **Meta Research Award**、**2021** 年 **R&D 100 Award**、**2020** 年 **IEEE-CS TCHPC Early Career Researchers Award for Excellence in High Performance Computing**、**2020** 年 **NSF CRII Award**。曾主持或共同主持美国国家科学基金、能源部、海洋和大气管理局等资助的 **10** 多项研究项目，经费总额超过 **1600** 万美元。曾多次担任国际学术会议和研讨会的重要职务，其中包括 **IEEE ScalCom'21** 程序委员会共同主席，**SC**、**ICS**、**HPDC**、**IPDPS**、**ICCAD**、**ICPP**、**CLUSTER**、**CCGrid**、**HiPC**、**BigData** 等程序委员会委员。主持或参与研发的多款高性能计算系统级软件被世界一流科研单位和超级计算中心广泛应用。截至 **2023** 年 **6** 月，共发表各类国际顶尖会议和期刊论文超过 **70** 篇，其中包括 **CCF A** 类论文 **23** 篇、**B** 类论文 **33** 篇 **(**含 **2** 篇大会最佳论文**)**。根据 **Google Scholar** 统计，近五年论文总引用数近 **2000** 次，单篇最高引用 **240** 次，**h-index 26**；根据 **CSRankings** 统计，近五年在高性能计算 **(HPC)** 方向上的顶级论文总数全美第 **1**、世界排第 **2**。.

教育背景

2013–2018 美国加州大学河滨分校, 伯恩斯工程学院, 计算机科学与工程系.
计算机科学博士 (Ph.D. in Computer Science)

2009–2013 中国科学技术大学, 数学学院, 计算数学系.
信息与计算科学学士 (B.S. in Mathematics)

工作经历

2022 至今 美国印第安纳大学（伯明顿分校），信息计算与工程学院, 智能系统工程系.
副教授 (Associate Professor)，破格 4 年晋升副教授

2020–2022 美国华盛顿州立大学, 电机工程与计算机科学学院, 计算机科学系.
助理教授 (Assistant Professor)

2018–2020 美国阿拉巴马大学（塔斯卡卢萨分校），工程学院, 计算机科学系.
助理教授 (Assistant Professor)

2018 美国能源部布鲁克海文国家实验室, 计算科学部.
研究助理 (Student Assistant)

2016–2017 美国能源部阿贡国家实验室, 数学与计算机科学部.
研究助理 (Research Aide)

2015 美国能源部西北太平洋国家实验室, 高性能计算组.
博士实习生 (PhD Intern)

获得奖励

2023 美国国家科学会杰出青年奖（**NSF CAREER Award**）.

注：NSF 每年会面向生物科学、计算机与信息科学工程、工程、地球科学、数学和物理科学、社会、行为和经济科学以及教育和人力资源领域资助约 500 个项目，每个项目约 50 万美金。NSF CAREER Award 是一项为期 5 年的特别资助，类似于中国国家杰出青年科学基金，主要强调对教职人员早期职业生涯的支持，每位教职人员申报不得超过三次，而终身只能获得一次 CAREER 资助。

2022 **Meta Research Award**.

2022 **Amazon Research Award**.

2021 **R & D 100 创新奖 - "SZ: A Lossy Compression Framework for Scientific Data"**.

注："R&D100 Award" 由《R&D Magazine》1963 年创设，被国际科技领域誉为科技界的 "创新奥斯卡奖"。该奖项从科技突破、独特创新及可实用性 3 个维度，由全球各领域的知名专家学者每年从上千个精选项目中经过两轮评比，最终评选出 100 项年度具重大创新商用价值的技术。

2020 国际电气电子工程师协会计算机学会高性能计算专委会杰出新人奖 **(IEEE-CS TCHPC Early Career Researchers Award for Excellence in High Performance Computing)**.

注：IEEE 高性能计算杰出新人奖是为表彰在高性能计算领域做出杰出贡献、具有极大发展潜力的青年学者专设奖项，每年全球范围内表彰不超过 3 人。自奖项设立以来，共有 6 位中国国籍科学家摘取该奖项，其中仅有 1 位来自中国大陆研究机构。

2020 美国国家科学基金计算机与信息科学工程研究启动计划奖 **(NSF CRII Award)**.

注：CRII Award 被视为 Pre-CAREER Award，用于资助全美处于职业生涯前两年的杰出助理教授，其申请竞争极其激烈，近几年全美每年在先进计算基础设施 (Office of Advanced Cyberinfrastructure, OAC) 方向的获奖者仅 4 位。

2018 **IEEE International Conference on Cluster Computing** 最佳论文奖 **(Best Paper Award)**.

2017 美国加州大学河滨分校学位论文年度奖学金 **(Dissertation Year Program Fellowship)**.

2013 美国加州大学河滨分校院长杰出奖学金 **(Dean's Distinguish Fellowship)**.

2009-2012 中国科学技术大学奖学金.

2010 全国大学生数学建模竞赛二等奖.

2008 全国高中数学联赛省一等奖（免试保送中国科学技术大学）.

2005 全国青少年信息学奥林匹克联赛一等奖.

科研基金

主持 (PI) 科研项目总额 360 余万美元，共同主持 (co-PI) 科研项目总额超 1700 万美元.

10/2023–09/2026 美国国家科学基金项目，*Collaborative Research: SHF: Small: Reimagining Communication Bottlenecks in GNN Acceleration through Collaborative Locality Enhancement and Compression Co-Design*, 主持, 编号 NSF-2326495, 30 万美元.

07/2023–06/2027 美国国家科学基金项目，*Collaborative Research: Frameworks: FZ: A fine-tunable cyberinfrastructure framework to streamline specialized lossy compression development*, 主持, 编号 NSF-2311876, 58 万美元.

01/2023–12/2027 美国国家科学基金项目，*CAREER: A Highly Effective, Usable, Performant, Scalable Data Reduction Framework for HPC Systems and Applications*, 主持, 编号 NSF-2312673, 50 万美元.

2022 **Meta** 公司捐赠, 独立主持, Accelerating Communication in DLRM via Frequency-aware Lossy Compression, 5 万美元.

06/2022–05/2025 美国国家科学基金项目，*Collaborative Research: OAC Core: CEAPA: A Systematic Approach to Minimize Compression Error Propagation in HPC Applications*, 主持, 编号 NSF-2211539, 25 万美元.

08/2021–07/2024 美国国家科学基金项目, *Collaborative Research: Elements: ROCCI: Integrated Cyberinfrastructure for In Situ Lossy Compression Optimization Based on Post Hoc Analysis Requirements*, 主持, 编号 NSF-2104024, 28 万美元.

08/2020–07/2023 美国国家科学基金项目, *CDS&E: Collaborative Research: HyLoC: Objective-driven Adaptive Hybrid Lossy Compression Framework for Extreme-Scale Scientific Applications*, 总主持, 编号 NSF-2042084, 27 万美元.

05/2020–04/2023 美国国家科学基金项目, *CRII: OAC: An Efficient Lossy Compression Framework for Reducing Memory Footprint for Extreme-Scale Deep Learning on GPU-Based HPC Systems*, 独立主持, 编号 NSF-2034169, 19 万美元.

08/2021–08/2023 美国能源部项目, *FAIR Surrogate Benchmarks Supporting AI and Simulation Research*, 独立主持, 编号 1F-60533, 21 万美元.

01/2023–12/2023 美国能源部项目, *Integrating SZ in HDF5 and Optimizing Parallel I/O Performance*, 独立主持, 编号 3F-60052, 8 万美元.

01/2021–12/2022 美国能源部项目, *Exploring Multiresolution Based Compression for Extreme-Scale Scientific Applications*, 独立主持, 编号 1F-60329, 15 万美元.

06/2020–12/2023 美国能源部项目, *Improving GPU Version of SZ for Scientific Applications at Extreme Scale*, 独立主持, 编号 0F-60172, 3F-60034, 27 万美元.

2021 **AMD** 公司捐赠, 独立主持, Inference of Spare DNN Models on AMD EPYC CPU, 3 万美元.

08/2020–07/2023 美国国家科学基金项目, *CC* Compute: Accelerating Advances in Science and Engineering at The University of Alabama Through HPC Infrastructure*, 共同主持 (Jeffrey C. Carver 主持), 编号 NSF-2018846, 40 万美元.

2020 **Xilinx** 公司捐赠, 独立主持, 7000 美元 FPGA 设备.

08/2019–12/2019 美国能源部项目, *Improving Lossy Compression for Scientific Applications at Extreme Scale*, 独立主持, 编号 9F-60232, 2 万美元.

06/2019–05/2021 美国国家海洋和大气管理局项目, *Center for Remote Sensing of Snow and Soil Moisture*, 共同主持 (Siva Prasad Gogineni 主持), 编号 SUBAWD000837, 1000 万美元.

2019 **Xilinx** 公司捐赠, 独立主持, 4000 美元 FPGA 设备.

参与科研项目总额 **2180** 万美元.

01/2020–12/2023 国家自然基金面上项目, 高可扩展、高性能和高实用的稀疏矩阵计算关键技术研究, 境外身份申请与参与 (刘伟峰主持), 编号 61972415, 60 万元.

10/2019–06/2023 美国能源部 **E** 级计算项目, *VeloC: Very Low Overhead Transparent Multilevel Checkpoint/Restart/SZ: Fast, Effective, Parallel Error-bounded Exascale Lossy Compression for Scientific Data*, 学生参与 (Franck Cappello 主持), 编号 PRJ1007629, 383 万美元.

12/2019–12/2021 阿美石油公司 **(Aramco)** 项目, *Exploration of Lossy Data Compression for Seismic Imaging Application*, 参与 (Franck Cappello 主持), 102 万美元.

09/2016–06/2023 美国能源部 **E** 级计算 **(Exascale Computing Project)** 项目, *Computing the Sky at Extreme Scales*, 学生参与 (Salman Habib 主持), 编号 82658, 770 万美元.

11/2016–09/2022 美国能源部 **E** 级计算项目, *CODAR: Co-Design Center for Online Data Analysis and Reduction at the Exascale*, 学生参与 (Ian Foster 主持), 编号 82707, 847 万美元.

09/2012–09/2018 美国国家科学基金项目, *CAREER: Dependable High Performance Scientific Computing at Extreme Scale via Algorithmic Fault Tolerance*, 学生参与 (陈子忠主持), 编号 NSF-1305624, 46 万美元.

09/2012–07/2016 美国国家科学基金项目, *SHF: Small: FTLA: Fault Tolerant Linear Algebra Software for Massively Parallel Architectures*, 学生参与 (陈子忠主持), 编号 NSF-1305622, 34 万美元.

学术组织

2021 程序委员会共同主席 **(Technical Program Co-chair)**, *The 21st IEEE International Conference on Scalable Computing & Communications (IEEE ScalCom '21)*.

2023 研讨会主席 **(Program Committee Chair)**, *The 9th International Workshop on Data Analysis and Reduction for Big Scientific Data (DRBSD-9)*.

2020-2021 研讨会主席 **(General Program Co-chair)**, *The First & Second & Third International Workshop on Big Data Reduction (IWBDR '20 '21 '22)*.

2019-2020 共同主席 **(Program Co-chair)**, *The First & Second International Workshop on Big Data Analytics of Cyber-Physical Systems (CPSBigData '19 '20)*.

2018 至今 国际学术会议程序委员会委员 **(Technical Program Committee)**.

- 2024、2023、2022、2021 IEEE International Parallel and Distributed Processing Symposium (IPDPS)
- 2023、2022 ACM International Symposium on High-Performance Parallel and Distributed Computing (HPDC)
- 2023、2022、2020 ACM/IEEE International Conference for High Performance Computing, Networking, Storage, and Analysis (SC)
- 2023、2021、2020 IEEE International Conference on Cluster Computing (CLUSTER)
- 2023 ACM/IEEE International Symposium on Cluster, Cloud and Internet Computing (CCGrid)
- 2022、2021、2019、2018 IEEE International Conference on HPC, Data, and Analytics (HiPC)
- 2020 International Conference on Parallel Processing (ICPP)
- 2022、2021、2020 IEEE International Conference on Big Data (BigData)
- 2023、2022、2021 IEEE International Conference on Machine Learning and Applications (ICMLA)
- 2022、2020、2019、2018 IFIP International Conference on Network and Parallel Computing (NPC)

2018 至今 国际学术期刊审稿人 **(Reviewer) 150** 余次.

- IEEE Transactions on Computers (TC), CCF A 类
- IEEE Transactions on Parallel and Distributed Systems (TPDS), CCF A 类
- IEEE Transactions on Dependable and Secure Computing (TDSC), CCF A 类
- IEEE Transactions on Visualization and Computer Graphics (TVCG), CCF A 类
- IEEE Transactions on Knowledge and Data Engineering (TKDE), CCF A 类
- ACM Transactions on Storage (TOS), CCF A 类
- ACM Transactions on Architecture and Code Optimization (TACO), CCF A 类
- Journal of Parallel and Distributed Computing (JPDC), CCF B 类
- Parallel Computing (PARCO), CCF B 类
- Journal of Systems Architecture, CCF B 类
- Concurrency and Computation: Practice and Experience, CCF C 类
- IEEE Transactions on Cloud Computing (TCC), CCF C 类
- IEEE Transactions on Big Data (TBD), CCF C 类
- The Journal of Supercomputing (TJSC), CCF C 类
- IEEE Transactions on Sustainable Computing (TSUSC) , CCF C 类
- IEEE Transactions on Emerging Topics in Computing (TETC)
- IEEE Transactions on Smart Grid (TSC)
- SIAM Journal on Scientific Computing (SISC)

代表论著

CCF A 类论文 23 篇，B 类论文 29 篇 (含 2 篇大会最佳论文)。HPC 方向三大会 SC、HPDC、ICS(根据 CSRankings) 论文 16 篇。下划线标注为本人指导学生.

SC'23 (CCF A 类) Daoce Wang, Jesus Pulido, Pascal Grosset, Jiannan Tian, Sian Jin, Houjun Tang, Jean Sexton, Sheng Di, Zarija Lukić, Kai Zhao, Bo Fang, Franck Cappello, James Ahrens, **Dingwen Tao**. "AMRIC: A Novel In Situ Lossy Compression Framework for Efficient I/O in Adaptive Mesh Refinement Applications." *SC23: The International Conference for High Performance Computing, Networking, Storage and Analysis*, Salt Lake City, Denver, Nov 13–17, 2023. 接受率: 24% (90/376). (通讯作者)

SC'23 (CCF A 类) Zhengyang He, Yafan Huang, Hui Xu, **Dingwen Tao**, Guanpeng Li. "Demystifying and Mitigating Cross-Layer Deficiencies of Soft Error Protection in Instruction Duplication." *SC23: The International Conference for High Performance Computing, Networking, Storage and Analysis*, Salt Lake City, Denver, Nov 13–17, 2023. 接受率: 24% (90/376).

PPoPP'23 (CCF A 类) Lizhi Xiang, Miao Yin, Chengming Zhang, Aravind Sukumaran-Rajam, P. Saday, Bo Yuan, **Dingwen Tao**. "TDC: Towards Extremely Efficient CNNs on GPUs via Hardware-Aware Tucker Decomposition." *The 28th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, Montreal, Canada, Feb 26–Mar 1, 2023. 接受率: 23% (31/131). (通讯作者)

AAAI'23 (CCF A 类) Jinqi Xiao, Chengming Zhang, Yu Gong, Miao Yin, Yang Sui, Lizhi Xiang, **Dingwen Tao**, Bo Yuan. "HALOC: Hardware-Aware Automatic Low-Rank Compression for Compact Neural Networks." *The 37th AAAI Conference on Artificial Intelligence*, Washington DC, Feb 7–14, 2023. 接受率: 19% (1721/8777).

VLDB'23 (CCF A 类) Pu Jiao, Sheng Di, Hanqi Guo, Kai Zhao, Jiannan Tian, **Dingwen Tao**, Xin Liang, Franck Cappello. "Toward Quantity-of-Interest Preserving Lossy Compression for Scientific Data." *The 49th International Conference on Very Large Data Bases*, Vancouver, Canada, Aug 28–Sep 1, 2023.

HPDC'23 (CCF B 类) Boyuan Zhang, Jiannan Tian, Sheng Di, Xiaodong Yu, Yunhe Feng, Xin Liang, **Dingwen Tao**, Franck Cappello. "FZ-GPU: A Fast and High-Ratio Lossy Compressor for Scientific Computing Applications on GPUs." *The 32nd ACM International Symposium on High-Performance Parallel and Distributed Computing*, Orlando, FL, June 16–23, 2022. 接受率: 22% (23/101). (通讯作者)

ICS'23 (CCF B 类) Chengming Zhang, Shaden Smith, Baixi Sun, Jiannan Tian, Jonathan Soifer, Xiaodong Yu, Shuaiwen Leon Song, Yuxiong He, **Dingwen Tao**. "HEAT: A Highly Efficient and Affordable Training System for Collaborative Filtering Based Recommendation on CPUs." *The 37th ACM International Conference on Supercomputing*, Orlando, FL, USA, June 21–23, 2023. 接受率: 26% (36/136). (通讯作者)

ICS'23 (CCF B 类) Boyuan Zhang, Jiannan Tian, Sheng Di, Xiaodong Yu, Martin Swany, **Dingwen Tao**, Franck Cappello. "GPULZ: Optimizing LZSS Lossless Compression for Multi-byte Data on Modern GPUs." *The 37th ACM International Conference on Supercomputing*, Orlando, FL, USA, June 21–23, 2023. 接受率: 26% (36/136). (通讯作者)

ICS'23 (CCF B 类) Anqi Guo, Yuchen Hao, Chunshu Wu, Pouya Haghi, Zhenyu Pan, Min Si, **Dingwen Tao**, Ang Li, Martin Herbordt, Tong Geng. "Software-Hardware Co-design of Heterogeneous SmartNIC System for Recommendation Models Inference and Training." *The 37th ACM International Conference on Supercomputing*, Orlando, FL, USA, June 21–23, 2023. 接受率: 26% (36/136).

IEEE TPDS (CCF A 类) Haoyu Jin, Donglei Wu, Shuyu Zhang, Xiangyu Zou, Sian Jin, **Dingwen Tao**, Qing Liao and Wen Xia. "Design of a Quantization-based DNN Delta Compression Framework for Model Snapshots and Federated Learning." *IEEE Transactions on Parallel and Distributed Systems* (2022).

SC'22 (CCF A 类) Sian Jin, **Dingwen Tao**, Houjun Tang, Sheng Di, Suren Byna, Zarija Lukic, Franck Cappello. "Accelerating Parallel Write via Deeply Integrating Predictive Lossy Compression with HDF5." *The International Conference for High Performance Computing, Networking, Storage and Analysis*, Dallas, TX, Nov 13–18, 2022. 接受率: 24% (81/330). (通讯作者)

ICDE'22 (CCF A 类) Sian Jin, Sheng Di, Jiannan Tian, Suren Byna, **Dingwen Tao**, Franck Cappello. "Significantly Improving Prediction-Based Lossy Compression Via Ratio-Quality Modeling." *The 38th IEEE International Conference on Data Engineering*, Kuala Lumpur, Malaysia, May 9–12, 2022. (通讯作者)

VLDB'22 (CCF A 类) Sian Jin, Chengming Zhang, Jiannan Tian, Yunhe Feng, Hui Guan, Guanpeng Li, Shuaiwen Leon Song, **Dingwen Tao**. "COMET: A Novel Memory-Efficient Deep Learning Training Framework by Using Error-Bounded Lossy Compression." *The 48th International Conference on Very Large Data Bases*, Sydney, Australia, September 5–9, 2022. (通讯作者)

PACT'22 (CCF B 类) Xinyu Chen, Marco Minutoli, Jiannan Tian, Mahantesh Halappanavar, Ananth Kalyanaraman, **Dingwen Tao**. "HBMax: Optimizing Memory Efficiency for Parallel Influence Maximization on Multicore Architectures." *The 31st International Conference on Parallel Architectures and Compilation Techniques*, Chicago, IL, October 10–12, 2022. 接受率: 33% (40/118). (通讯作者)

HPDC'22 (CCF B 类) Daoce Wang, Jesus Pulido, Pascal Grosset, Sian Jin, Jiannan Tian, James Ahrens, **Dingwen Tao**. "TAC: Optimizing Error-Bounded Lossy Compression for Three-Dimensional Adaptive Mesh Refinement Simulations." *The 31st ACM International Symposium on High-Performance Parallel and Distributed Computing*, Minneapolis, MN, June 27–July 1, 2022. 接受率: 19% (21/108). (通讯作者)

HPDC'22 (CCF B 类) Xiaodong Yu, Sheng Di, Kai Zhao, Jiannan Tian, **Dingwen Tao**, Xin Liang, Franck Cappello. "Ultra-fast Error-bounded Lossy Compression for Scientific Dataset." *The 31st ACM International Symposium on High-Performance Parallel and Distributed Computing*, Minneapolis, MN, June 27–July 1, 2022. 接受率: 19% (21/108).

ICS'22 (CCF B 类) Chengming Zhang, Sian Jin, Tong Geng, Jiannan Tian, Ang Li, **Dingwen Tao**. "CEAZ: Accelerating Parallel I/O via Hardware-Algorithm Co-Designed Adaptive Lossy Compression." *The 36th ACM International Conference on Supercomputing*, USA, June 27–30, 2022. 接受率: 23% (39/165). (通讯作者)

ICS'22 (CCF B 类) Heng Zhang, Lingda Li, Hang Liu, Donglin Zhuang, Rui Liu, Chengying Huan, Shuang Song, **Dingwen Tao**, Yongchao Liu, Charles He, Yanjun Wu, Shuaiwen Leon Song. "Bring Orders into Uncertainty: Enabling Efficient Uncertain Graph Processing via Novel Path Sampling on Multi-Accelerator System." *The 36th ACM International Conference on Supercomputing*, USA, June 27–30, 2022. 接受率: 23% (39/165).

IPDPS'22 (CCF B 类) Cody Rivera, Sheng Di, Xiaodong Yu, Jiannan Tian, **Dingwen Tao**, Franck Cappello. "Optimizing Huffman Decoding for Error-Bounded Lossy Compression on GPUs." *2021 IEEE International Parallel and Distributed Symposium*, Lyon, France, May 30–June 3, 2022. (通讯作者)

IEEE TPDS (CCF A 类) 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 Parallel and Distributed Systems* 33(12), 4440-4457 (2022).

IEEE TC (CCF A 类) Xin Liang, Ben Whitney, Jieyang Chen, Lipeng Wan, Qing Liu, **Dingwen Tao**, James Kress, Dave Pugmire, Matthew Wolf, Nobert Podhorszki, Scott Klasky. "MGARD+: Optimizing Multilevel Methods for Error-bounded Scientific Data Reduction." *IEEE Transactions on Computers* 71(7): 1522–1536 (2022).

CLUSTER'21 (CCF B 类) Jiannan Tian, Sheng Di, Xiaodong Yu, Cody Rivera, Kai Zhao, Sian Jin, Yunhe Feng, Xin Liang, **Dingwen Tao**, Franck Cappello. "cuSZ(x): Optimizing Error-Bounded Lossy Compression for Scientific Data on GPUs." *IEEE International Conference on Cluster Computing*, Portland, OR, USA, September 7–10, 2021. 接受率: 29% (48/163). (通讯作者)

CLUSTER'21 (CCF B 类) Bo Fang*, Daoce Wang*, Sian Jin, Quincey Koziol, Zhao Zhang, Qiang Guan, Suren Byna, Sriram Krishnamoorthy, **Dingwen Tao**. "Characterizing Impacts of Storage Faults on HPC Applications: A Methodology and Insights." *IEEE International Conference on Cluster Computing*, Portland, OR, USA, September 7–10, 2021. * 共同一作. 接受率: 29% (48/163). (通讯作者)

ICS'21 (CCF B 类) Chengming Zhang, Geng Yuan, Wei Niu, Jiannan Tian, Sian Jin, Donglin Zhuang, Zhe Jiang, Yanzhi Wang, Bin Ren, Shuaiwen Leon Song, **Dingwen Tao**. "ClickTrain: Efficient and Accurate End-to-End Deep Learning Training via Fine-Grained Architecture-Preserving Pruning." *The 35th ACM International Conference on Supercomputing*, USA, June 14–17, 2021. 接受率: 24% (38/157). (通讯作者)

HPDC'21 (CCF B 类) Sian Jin, Jesus Pulido, Pascal Grosset, Jiannan Tian, **Dingwen Tao**, James Ahrens. "Adaptive Configuration of In Situ Lossy Compression for Cosmology Simulations via Fine-Grained Rate-Quality Modeling." *The 30th ACM International Symposium on High-Performance Parallel and Distributed Computing*, Stockholm, Sweden, June 21–25, 2021. 接受率: 19% (21/108).

JPDC (CCF B 类) Cody Rivera, Jieyang Chen, Nan Xiong, Jing Zhang, Shuaiwen Leon Song, **Dingwen Tao**. "TSM2X: High-Performance Tall-and-Skinny Matrix-Matrix Multiplication on GPUs." *Journal of Parallel and Distributed Computing* (2021). (通讯作者)

IPDPS'21 (CCF B 类) Jiannan Tian, Cody Rivera, Sheng Di, Jieyang Chen, Xin Liang, **Dingwen Tao**, Franck Cappello. "Revisiting Huffman Coding: Toward Extreme Performance on Modern GPU Architectures." *2021 IEEE International Parallel and Distributed Symposium*, Portland, OR, USA, May 17–21, 2021. 接受率: 22% (105/462) (通讯作者)

PACT'20 (CCF B 类) Jiannan Tian, Sheng Di, Kai Zhao, Cody Rivera, Sian Jin, Megan Hickman, Robert Underwood, Xin Liang, Jon Calhoun, **Dingwen Tao**, Franck Cappello. "cuSZ: An Efficient GPU Based Error-Bounded Lossy Compression Framework for Scientific Data." *The 29th International Conference on Parallel Architectures and Compilation Techniques*, Atlanta, GA, USA, October 3–7, 2020. 接受率: 25% (35/137). (通讯作者)

ICPP'20 (CCF B 类) Zhenbo Hu, Xiangyu Zou, Wen Xia, Sian Jin, **Dingwen Tao**, Yang Liu, Weizhe Zhang, and Zheng Zhang. "Delta-DNN: Efficiently Compressing Deep Neural Networks via Exploiting Floats Similarity." *The 49th International Conference on Parallel Processing*, Edmonton, AB, CANADA, August 17–20 2020. 接受率: 28% (78/269).

DAC'20 (CCF A 类) Peiyan Dong, Siyue Wang, Wei Niu, Chengming Zhang, Sheng Lin, Zhengang Li, Yifan Gong, Bin Ren, Xue Lin, **Dingwen Tao**. "RTMobile: Beyond Real-Time Mobile Acceleration of RNNs for Speech Recognition." *The 57th Annual Design Automation Conference*, San Francisco, CA, USA, July 19–23, 2020. 接受率: 23% (228/984). (通讯作者)

HPDC'20 (CCF B 类) Kai Zhao, Sheng Di, Xin Liang, Sihuan Li, **Dingwen Tao**, Zizhong Chen, Franck Cappello. "Significantly Improving Lossy Compression for HPC Datasets with Second-Order Prediction and Parameter Optimization." *The 29th ACM International Symposium on High-Performance Parallel and Distributed Computing*, Sweden, June 23–26, 2020. 接受率: 22% (16/71).

IPDPS'20 (CCF B 类) Sian Jin, Pascal Grosset, Christopher M. Biwer, Jesus Pulido, Jiannan Tian, **Dingwen Tao**, James Ahrens. "Understanding GPU-Based Lossy Compression for Extreme-Scale Cosmological Simulations." *2020 IEEE International Parallel and Distributed Symposium*, New Orleans, LA, USA, May 18–22, 2020. 接受率: 24% (110/446). (通讯作者)

PPoPP'20 (CCF A 类) Jiannan Tian, Sheng Di, Chengming Zhang, Xin Liang, Sian Jin, Dazhao Cheng, **Dingwen Tao**, Franck Cappello. "waveSZ: A Hardware-Algorithm Co-Design of Efficient Lossy Compression for Scientific Data." *The 25th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming*, San Diego, USA, February 22–26, 2020. 接受率: 23% (28/121). (通讯作者)

IEEE TPDS (CCF A 类) Xiangyu Zou, Tao Lu, Wen Xia, Xuan Wang, Weizhe Zhang, Haijun Zhang, Sheng Di, **Dingwen Tao**, Franck Cappello. "Performance Optimization for Relative-Error-Bounded Lossy Compression on Scientific Data." *IEEE Transactions on Parallel and Distributed Systems* 31(7): 1665–1680 (2020).

HPDC'19 (CCF B 类) Sian Jin, Sheng Di, Xin Liang, Jiannan Tian, **Dingwen Tao**, Franck Cappello. "DeepSZ: A Novel Framework to Compress Deep Neural Networks by Using Error-Bounded Lossy Compression." *The 28th ACM International Symposium on High-Performance Parallel and Distributed Computing*, Phoenix, AZ, USA, June 24–28, 2019. 接受率: 20% (22/106). (通讯作者)

IEEE TPDS (CCF A 类) **Dingwen Tao**, Sheng Di, Xin Liang, Zizhong Chen, Franck Cappello. "Optimizing Lossy Compression Rate-Distortion from Automatic Online Selection Between SZ and ZFP." *IEEE Transactions on Parallel and Distributed Systems* 30(8): 1857–1871 (2019). (第一作者)

SC'19 (CCF A 类) Xin Liang, Sheng Di, Sihuan Li, **Dingwen Tao**, Bogdan Nicolae, Zizhong Chen, Franck Cappello. "Significantly Improving Lossy Compression Quality based on An Optimized Hybrid Prediction Model." *The 32nd International Conference for High Performance Computing, Networking, Storage and Analysis*, Denver, CO, USA, Nov 17–22, 2019. 接受率: 25% (87/339).

ICS'19 (CCF B 类) Jieyang Chen, Nan Xiong, Xin Liang, **Dingwen Tao**, Sihuan Li, Kaiming Ouyang, Kai Zhao, Nathan DeBardeleben, Qiang Guan, Zizhong Chen. "TSM2: Optimizing Tall-and-Skinny Matrix-Matrix Multiplication on GPUs." *The 33rd ACM International Conference on Supercomputing*, Phoenix, AZ, USA, June 26–28, 2019. 接受率: 23% (45/193).

MSST'19 (CCF B 类) Xiangyu Zou, Tao Lu, Wen Xia, Xuan Wang, Weizhe Zhang, Sheng Di, **Dingwen Tao**, Franck Cappello. "Accelerating Relative-error Bounded Lossy Compression for HPC datasets with Precomputation-Based Mechanisms." *IEEE Symposium on Mass Storage Systems and Technologies*, Santa Clara, CA, USA, May 20–24, 2019.

IJHPCA **Dingwen Tao**, Sheng Di, Hanqi Guo, Zizhong Chen, Franck Cappello. "Z-checker: A Framework for Assessing Lossy Compression of Scientific Data." *The International Journal of High-Performance Computing Applications* 33(2) (2019). (第一作者)

IEEE TPDS (CCF A 类) Sheng Di, **Dingwen Tao**, Franck Cappello. "Efficient Lossy Compression for Scientific Data Based on Pointwise Relative Error Bound." *IEEE Transactions on Parallel and Distributed Systems 30, no. 2 (2018): 331-345.* (第二作者)

HPDC'18 (CCF B 类) **Dingwen Tao**, Sheng Di, Xin Liang, Zizhong Chen, Franck Cappello. "Improving Performance of Iterative Methods by Lossy Checkpointing." *The 27th ACM International Symposium on High-Performance Parallel and Distributed Computing*, Tempe, AZ, USA, June 11–15, 2018. 接受率: 19% (22/112). (第一作者)

CLUSTER'18 (CCF B 类) Xin Liang, Sheng Di, **Dingwen Tao**, Zizhong Chen, Franck Cappello. "An Efficient Transformation Scheme for Lossy Data Compression with Point-wise Relative Error Bound." *IEEE International Conference on Cluster Computing*, Belfast, UK, September 10–13, 2018. 接受率: 2.6% (4/154). 大会数据存储方向最佳论文

CLUSTER'18 (CCF B 类) Ali Murat Gok, Sheng Di, Yury Alexeev, **Dingwen Tao**, Vladimir Mironov, Franck Cappello. "PaSTRI: Error-Bounded Lossy Compression for Two-Electron Integrals in Quantum Chemistry." *IEEE International Conference on Cluster Computing*, Belfast, UK, September 10–13, 2018. 接受率: 0.7% (1/154). 大会最佳论文

SC'18 (CCF A 类) Jieyang Chen, Hongbo Li, Sihuan Li, Xin Liang, Panruo Wu, **Dingwen Tao**, Kaiming Ouyang, Yuanlai Liu, Kai Zhao, Qiang Guan, Zizhong Chen. "FT-MAGMA: Fault Tolerance Dense Matrix Decomposition on Heterogeneous Systems with GPUs." *The 31st International Conference for High Performance Computing, Networking, Storage and Analysis*, Dallas, TX, USA, Nov 11–16, 2018. 接受率: 24% (68/288).

IPDPS'17 (CCF B 类) **Dingwen Tao**, Sheng Di, Zizhong Chen, Franck Cappello. "Significantly Improving Lossy Compression for Scientific Data Sets Based on Multidimensional Prediction and Error-Controlled Quantization." *2017 IEEE International Parallel and Distributed Processing Symposium*, Orlando, FL, USA, May 29–June 2, 2017. 接受率: 22% (116/508). (第一作者)

SC'17 (CCF A 类) Xin Liang, Jieyang Chen, **Dingwen Tao**, Sihuan Li, Panruo Wu, Hongbo Li, Kaiming Ouyang, Yuanlai Liu, Fengguang Song, Zizhong Chen. "Correcting Soft Errors Online in Fast Fourier Transform." *The 30th International Conference for High Performance Computing, Networking, Storage and Analysis*, Denver, CO, USA, Nov 12–17, 2017. 接受率: 19% (61/327).

HPDC'16 (CCF B 类) **Dingwen Tao**, Shuaiwen Leon Song, Sriram Krishnamoorthy, Panruo Wu, Xin Liang, Eddy Z. Zhang, Darren Kerbyson, Zizhong Chen. "New-Sum: A Novel Online ABFT Scheme for General Iterative Methods." *The 25th ACM International Symposium on High-Performance Parallel and Distributed Computing*, Kyoto, JAPAN, May 31–June 4, 2016. 接受率: 15% (20/129). (第一作者)

SC'16 (CCF A 类) Jieyang Chen, Li Tan, Panruo Wu, **Dingwen Tao**, Hongbo Li, Xin Liang, Sihuan Li, Rong Ge, Laxmi Bhuyan, Zizhong Chen. "GreenLA: Green Linear Algebra Software for GPU-Accelerated Heterogeneous Computing." *The 29th International Conference for High Performance Computing, Networking, Storage and Analysis*, Salt Lake City, UT, USA, Nov 13–18, 2016. 接受率: 18% (82/446).

HPDC'16 (CCF B 类) Panruo Wu, Qiang Guan, Nathan DeBardeleben, Sean Blanchard, **Dingwen Tao**, Xin Liang, Jieyang Chen, Zizhong Chen "Towards Practical Algorithm Based Fault Tolerance in Dense Linear Algebra." *The 25th ACM International Symposium on High-Performance Parallel and Distributed Computing*, Kyoto, JAPAN, May 31–June 4, 2016. 接受率: 15% (20/129).

教学经历

2022 至今 美国印第安纳大学本科/研究生部.
- 工程云计算 (Engineeerin Cloud Computing), Fall 2022, Spring 2023

2020–2022 美国华盛顿州立大学本科/研究生部.
- 高级数据结构 (Advanced Data Structures in Java), Spring 2021, Fall 2022
- 计算机网络 (Introduction to Computer Networks), Fall 2020, Fall 2022

2018–2020 美国阿拉巴马大学本科/研究生部.
- 高性能计算 (High Performance Computing), Spring 2019, Spring 2020
- 计算机算法 (Computer Algorithms), Fall 2019

2013–2018 美国加州大学河滨分校本科部.
- 高性能计算 (High Performance Computing), Fall 2014, Fall 2015, Fall 2016
- 计算机概论 (Introduction to Computing), Winter 2015, Fall 2014

学术团体

国际计算机学会 (ACM) 会员

国际电气和电子工程师协会 (IEEE) 会员