

Chuan Wu (Curriculum Vitae)

PRESENT APPOINTMENT	Professor Department of Computer Science The University of Hong Kong Pokfulam Road Hong Kong	<i>Office:</i> CB 427 <i>Phone:</i> (852) 2857 8459 <i>Email:</i> cwu@cs.hku.hk <i>Web:</i> http://www.cs.hku.hk/~cwu
CURRENT RESEARCH INTERESTS	Modeling, optimization, design and implementation of cloud computing systems, distributed machine learning systems, smart elderly/child care technologies. Google Scholar total number of citations: 9641, h-index: 54	
ACADEMIC QUALIFICATION	◇ B.Eng. , Computer Science and Technology, Tsinghua University , Beijing, China, September 1996 — July 2000 ◇ M.Eng. , Computer Science and Technology, Tsinghua University , Beijing, China, September 2000 — July 2002 ◇ Ph.D. , Electrical and Computer Engineering, University of Toronto , Toronto, Ontario, Canada, September 2004 — July 2008	
PROFESSIONAL MEMBERSHIP	◇ Fellow, the Institute of Electrical and Electronic Engineers (IEEE) ◇ Distinguished Member, the Association for Computing Machinery (ACM) ◇ Fellow, Asia-Pacific Artificial Intelligence Association (AAIA)	
HONORARY ACADEMIC APPOINTMENTS	◇ Visiting associate professor, Pengcheng Laboratory, Shenzhen China: 2018-2020 ◇ Honorary chair professor, School of Computing, Wuhan University, China: 2018-2022 ◇ Honorary Research Fellow, Sau Po Centre on Ageing (COA) of The University of Hong Kong: 2022 - present	
HONORS AND AWARDS	◇ Elevation to IEEE Fellow (effective 1 January 2025), for contributions to resource scheduling in cloud computing and distributed machine learning systems. ◇ ACM Distinguished Member (January 2025), for contributions to online resource allocation in cloud computing and optimization of distributed machine learning systems. ◇ AAIA Fellow, 2025. ◇ Best Student Paper Award in the 20th International Conference on Mobility, Sensing and Networking (MSN), 2024. ◇ The University of Hong Kong Long Service Award, 2024 ◇ Brown Award for the invention “A Smart Elderly Walker” in the 48th Geneva International Exhibition of Inventions, 2023 ◇ Among the World’s Top 2% Scientists (by career-long impact), 2022. ◇ Amazon Research Award (ARA) on AWS AI, 2021. ◇ IEEE Transactions on Cloud Computing (TCC) Editorial Excellence and Eminence Award: 2019, 2020. ◇ MSRA Collaborative Research Award, 2018. ◇ Selected as one of the 10 female associate professors in HKU to participate in HKU-10 Mentorship Programme (inaugural cohort), 2017-2018. ◇ Best Paper Award in the Seventh ACM International Conference on Future Energy Systems (ACM e-Energy), 2016. ◇ Distinguished Member of TPC, IEEE INFOCOM 2015, 2016, 2019, 2020, 2023. ◇ Prolific Reviewer of IEEE Transactions on Parallel and Distributed Systems, 2012.	

- ◇ Best Paper Award in the 4th International Workshop on Hot Topics in Peer-to-Peer Computing and Online Social Networking (HotPOST'12), in conjunction with IEEE ICDCS 2012.
- ◇ IEEE Outstanding Leadership Award, 2011.
- ◇ Amazon Web Service (AWS) in Education Research Grant Award, 2011.
- ◇ University of Toronto Fellowship, 2004 — 2008.
- ◇ Outstanding Master Thesis, Tsinghua University, 2002.
- ◇ Tsinghua University Excellent Graduate Scholarship, 2001.
- ◇ Outstanding Graduate, Tsinghua University, 2000.
- ◇ Tsinghua University Social Work Scholarship for Excellence in Social Work, 1999.
- ◇ Tsinghua-Legend Scholarship for Outstanding Undergraduate Students, 1999.
- ◇ Tsinghua University First-Class Scholarship (awarded to the top 5% undergraduate students), 1998.
- ◇ Tsinghua University Excellent Undergraduate Student Scholarship, 1997.
- ◇ Tsinghua-Haolaixi Scholarship for Outstanding Undergraduate Students, 1996.

PUBLICATIONS

◇ **Book Chapters:**

[B1] Linqun Zhang, **Chuan Wu**, Zongpeng Li, Chuanxiong Guo, Minghua Chen, Francis C.M. Lau. "Moving Big Data to the Cloud: Online Cost-Minimizing Algorithms", pp. 75-102 in *Networking for Big Data*, Chapman & Hall/CRC, August 3, 2015.

[B2] Yixin Bao, **Chuan Wu**. "Geo-Distributed Big Data Analytics Systems: An Online Learning Approach for Dynamic Deployment", pp. 161-190 in *Smart Data: State-of-the-Art Perspectives in Computing and Applications*, Chapman & Hall/ CRC Big Data Series, March 13, 2019.

◇ **Journal Publications:**

[J1] **Chuan Wu**, Yufei Ma, Yuwen He, Yuzhuo Zhong, Hongjiang Zhang. "Event Recognition by Semantic Inference in Sports Videos", in *Elsevier Journal of Tsinghua Science and Technology*, Vol. 43, No. 4, pp. 507-510, April 2003.

[J2] **Chuan Wu**, Baochun Li. "Diverse: Application-Layer Service Differentiation in Peer-to-Peer Communications," in *IEEE Journal on Selected Areas in Communications, Special Issue on Peer-to-Peer Communications and Applications*, Vol. 25, No. 1, pp. 222-234, January 2007.

[J3] **Chuan Wu**, Baochun Li, Shuqiao Zhao. "Characterizing Peer-to-Peer Streaming Flows," in *IEEE Journal on Selected Areas in Communications, Special Issue on Advances in Peer-to-Peer Streaming Systems*, Vol. 25, No. 9, pp. 1612-1626, December 2007.

[J4] **Chuan Wu**, Baochun Li. "rStream: Resilient and Optimal Peer-to-Peer Streaming with Rateless Codes," in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 19, No. 1, pp. 77-92, January 2008.

[J5] **Chuan Wu**, Baochun Li, Zongpeng Li. "Dynamic Bandwidth Auctions in Multioverlay P2P Streaming with Network Coding," in *IEEE Transactions on Parallel and Distributed Systems*, Vol. 19, No. 6, pp. 806-820, June 2008.

[J6] **Chuan Wu**, Baochun Li, Shuqiao Zhao. "Exploring Large-Scale Peer-to-Peer Live Streaming Topologies," in *ACM Transactions on Multimedia Computing, Communications and Applications*, Vol. 4, Issue 3, No. 19, August 2008.

- [J7] Xuanjia Qiu, Wei Huang, **Chuan Wu**, Francis C.M. Lau, Xiaola Lin. "InstantLeap: an Architecture for Fast Neighbor Discovery in Large-scale P2P VoD Streaming," in *Springer Multimedia Systems Journal*, vol. 16, No. 3, pp. 183-198, Springer-Verlag, June 2010.
- [J8] **Chuan Wu**, Baochun Li, Shuqiao Zhao. "On Dynamic Server Provisioning in Multichannel P2P Live Streaming," in *IEEE/ACM Transactions on Networking*, vol. 19, No. 5, pp. 1317-1330, October 2011.
- [J9] Zhi Wang, **Chuan Wu**, Lifeng Sun, Shiqiang Yang, "Strategies of Collaboration in Multi-Swarm Peer-to-Peer Content Distribution," in *Elsevier Journal of Tsinghua Science and Technology*, Vol. 17, No. 1, pp. 29-39, February 2012.
- [J10] **Chuan Wu**, Baochun Li, Shuqiao Zhao. "Diagnosing Network-wide P2P Live Streaming Inefficiencies," in *ACM Transactions on Multimedia Computing, Communications and Applications*, Vol. 8s, Issue 1, No. 13, February 2012.
- [J11] **Chuan Wu**, Zongpeng Li, Xuanjia Qiu, Francis C.M. Lau, "Auction-based P2P VoD Streaming: Incentives and Optimal Scheduling," in *ACM Transactions on Multimedia Computing, Communications and Applications*, Vol. 8s, Issue 1, No. 14, February 2012.
- [J12] Jian Zhao, **Chuan Wu**. "Characterizing Locality-aware P2P Streaming," in *Journal of Communications*, Vol. 7, No. 3, pp. 222-231, March 2012.
- [J13] Xingwei Wang, Jiajia Sun, Hongxing Li, **Chuan Wu**, Min Huang. "A Reverse Auction Based Allocation Mechanism in the Cloud Computing Environment", in *Applied Mathematics & Information Sciences*, vol. 7, pp. 75-84, February 2013.
- [J14] Zhi Wang, **Chuan Wu**, Lifeng Sun, Shiqiang Yang. "Peer-Assisted Social Media Streaming With Social Reciprocity," in *IEEE Transactions on Network and Service Management*, vol. 10, No. 1, pp. 84-94, March 2013.
- [J15] Zhizhong Zhang, **Chuan Wu**, David W.L. Cheung. "A Survey on Cloud Interoperability: Taxonomies, Standards, and Practice," in *ACM SIGMETRICS Performance Evaluation Review*, vol. 40, No. 4, pp. 13-22, March 2013.
- [J16] Yu Wu, Zhizhong Zhang, **Chuan Wu**, Zongpeng Li, Francis C.M. Lau. "Cloud-MoV: Cloud-based Mobile Social TV," in *IEEE Transactions on Multimedia, Special Issue on Cloud-Based Mobile Media – Infrastructure, Services and Applications*, vol. 15, No. 4, pp. 821-832, June 2013.
- [J17] Ruiting Zhou, Zongpeng Li, **Chuan Wu**, Carey Williamson. "Signal Alignment: Enabling Physical Layer Network Coding for MIMO Networking," in *IEEE Transactions on Wireless Communications*, vol. 12, No. 6, pp. 3012-3023, June 2013.
- [J18] Hongxing Li, **Chuan Wu**, Dongxiao Yu, Qiang-Sheng Hua, Francis C.M. Lau. "Aggregation Latency-Energy Tradeoff in Wireless Sensor Networks with Successive Interference Cancellation," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 24, No. 11, pp. 2160-2170, November 2013.
- [J19] Linqun Zhang, **Chuan Wu**, Zongpeng Li, Chuanxiong Guo, Minghua Chen, Francis C.M. Lau. "Moving Big Data to the Cloud: An Online Cost-Minimizing Approach," in *IEEE Journal on Selected Areas in Communications, Special Issue on*

Networking Challenges in Cloud Computing Systems and Applications, vol. 31, No. 12, pp. 2710-2721, December 2013.

[J20] Hongxing Li, Qiangsheng Hua, **Chuan Wu**, Francis C.M. Lau. "Latency-Minimizing Data Aggregation in Wireless Sensor Networks under Physical Interference Model," in *Elsevier Ad Hoc Networks Journal*, vol. 12, pp. 52-68, January 2014.

[J21] Tang Xiahou, Zongpeng Li, **Chuan Wu**, Jiaqing Huang. "A Geometric Perspective to Multiple-Unicast Network Coding," in *IEEE Transactions on Information Theory*, vol. 60, No. 5, pp. 2884 - 2895, May 2014.

[J22] Wei Huang, **Chuan Wu**, Zongpeng Li, Francis C.M. Lau. "The Performance and Locality Tradeoff in BitTorrent-like File Sharing Systems," in *Springer Peer-to-Peer Networking and Applications Journal*, vol. 7, no. 4, pp. 469 - 484, December 2014.

[J23] Jian Zhao, **Chuan Wu**, Xiaojun Lin. "Locality-aware Streaming in Hybrid P2P-Cloud CDN Systems", in *Springer Peer-to-Peer Networking and Applications Journal, Special Issue on P2P Cloud Systems*, vol. 8, no. 2, pp. 320-335, March 2015.

[J24] Zhi Wang, Lifeng Sun, **Chuan Wu**, Shiqiang Yang. "Enhancing Internet-scale Video Service Deployment Using Microblog-based Prediction", in *IEEE Transactions on Parallel and Distributed Systems*, vol. 26, no. 3, pp. 775 - 785, March 2015.

[J25] Yu Wu, **Chuan Wu**, Bo Li, Linquan Zhang, Zongpeng Li, Francis C.M. Lau. "Scaling Social Media Applications into Geo-Distributed Clouds," in *IEEE/ACM Transactions on Networking*, vol. 23, no. 3, pp. 689 - 702, June 2015.

[J26] Zhi Wang, Lifeng Sun, **Chuan Wu**, Wenwu Zhu, Qidong Zhuang, Shiqiang Yang. "A Joint Online Transcoding and Delivery Approach for Dynamic Adaptive Streaming," in *IEEE Transactions on Multimedia*, vol. 17, no. 6, pp. 867-879, June 2015.

[J27] Xuanjia Qiu, Hongxing Li, **Chuan Wu**, Zongpeng Li, Francis C.M. Lau. "Cost-Minimizing Dynamic Migration of Content Distribution Services into Hybrid Clouds", in *IEEE Transactions on Parallel and Distributed Systems*, vol. 26, no. 12, pp. 3330-3345, December 2015.

[J28] Ruiting Zhou, Zongpeng Li, **Chuan Wu**, Minghua Chen. "Demand Response in Smart Grids: A Randomized Auction Approach," in *IEEE Journal on Selected Areas in Communications - Series in Green Communications and Networking (JSAC-SGCN)*, vol. 33, No. 12, pp. 2540-2553, December 2015.

[J29] Linquan Zhang, Zongpeng Li, **Chuan Wu**, Shaolei Ren. "Online Electricity Cost Saving Algorithms for Co-Location Data Centers," in *IEEE Journal on Selected Areas in Communications - Series in Green Communications and Networking (JSAC-SGCN)*, vol. 33, No. 12, pp. 2906-2919, December 2015.

[J30] Can Zhao, Xiaojun Lin, **Chuan Wu**. "The Streaming Capacity of Sparsely-Connected P2P Systems with Distributed Control", in *IEEE/ACM Transactions on Networking*, vol. 24, no. 1, pp. 58-71, February 2016.

[J31] Hongxing Li, **Chuan Wu**, Zongpeng Li, Francis C.M. Lau. "Virtual Machine Trading in a Federation of Clouds: Individual Profit and Social Welfare Maximiza-

tion," in *IEEE/ACM Transactions on Networking*, vol. 24, no. 3, pp. 1827 - 1840, June 2016.

[J32] Weijie Shi, Linqun Zhang, **Chuan Wu**, Zongpeng Li, Francis C.M. Lau. "An Online Auction Framework for Dynamic Resource Provisioning in Cloud Computing," in *IEEE/ACM Transactions on Networking*, vol 24, no. 4, pp. 2060 - 2073, August 2016.

[J33] Can Zhao, Jian Zhao, Xiaojun Lin, **Chuan Wu**. "Capacity of P2P On-Demand Streaming with Simple, Robust and Decentralized Control", in *IEEE/ACM Transactions on Networking*, vol. 24, no. 5, pp. 2607 - 2620, October 2016.

[J34] Linqun Zhang, Shaolei Ren, **Chuan Wu**, Zongpeng Li. "A Truthful Incentive Mechanism for Emergency Demand Response in Geo-distributed Colocation Data Centers," in *ACM Transactions on Modeling and Performance Evaluation of Computing Systems*, vol. 1, no. 4, September 2016.

[J35] Qihang Sun, **Chuan Wu**, Zongpeng Li, Shaolei Ren. "Colocation Demand Response: Joint Online Mechanisms for Individual Utility and Social Welfare Maximization," in *IEEE Journal on Selected Areas in Communications - Series on Green Communications and Networking*, vol. 34, no. 12, pp. 3978 - 3992, December 2016.

[J36] Yu Wu, Zhizhong Zhang, **Chuan Wu**, Chuanxiong Guo, Zongpeng Li, Francis C.M. Lau. "Orchestrating Bulk Data Transfers across Geo-Distributed Datacenters", in *IEEE Transactions on Cloud Computing*, vol. 5, no. 1, pp. 112 - 125, January-March 2017.

[J37] Xiaoxi Zhang, Zhiyi Huang, **Chuan Wu**, Zongpeng Li, Francis C.M. Lau. "An Online Stochastic Buy-Sell Mechanism for VNF Chains in the NFV Market," in *IEEE Journal on Selected Areas in Communications (JSAC) - Special Issue on Game Theory for Networks*, vol. 35, No. 2, pp. 1-15, February 2017.

[J38] Sijia Gu, Zongpeng Li, **Chuan Wu**, Huyin Zhang. "Virtualized Resource Sharing in Cloud Radio Access Networks Through Truthful Mechanisms," in *IEEE Transactions on Communications*, vol. 65, No. 3, pp. 1105 - 1118, March 2017.

[J39] Weijie Shi, **Chuan Wu**, Zongpeng Li. "An Online Auction Mechanism for Dynamic Virtual Cluster Provisioning in Geo-Distributed Clouds," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 28, No. 3, pp. 677-688, March 2017.

[J40] Xiaoxi Zhang, Zhiyi Huang, **Chuan Wu**, Zongpeng Li, Francis C.M. Lau. "Online Auctions in IaaS Clouds: Welfare and Profit Maximization with Server Costs", in *IEEE/ACM Transactions on Networking*, vol. 25, No. 2, pp. 1034 - 1047, April 2017.

[J41] Ruiting Zhou, Zongpeng Li, **Chuan Wu**, Zhiyi Huang. "An Efficient Cloud Market Mechanism for Computing Jobs with Soft Deadlines", in *IEEE/ACM Transactions on Networking*, vol. 25, No. 2, pp. 793-805, April 2017.

[J42] Jingpu Duan, **Chuan Wu**, Franck Le, Alex X. Liu, Yanghua Peng. "Dynamic Scaling of Virtualized, Distributed Service Chains: A Case Study of IMS," in *IEEE Journal on Selected Areas in Communications (JSAC) Special issue on Emerging Technologies in Software-driven Communication*, vol. 35, no. 11, pp. 2501-2511, November 2017.

- [J43] Mohammad H. Hajiesmaili, Lok To Mak, Zhi Wang, **Chuan Wu**, Minghua Chen. "Cost-Effective Low-Delay Cloud Video Conferencing," in *IEEE Transactions on Multimedia*, vol. 19, no. 12, pp. 2760-2774, December 2017.
- [J44] Ruiting Zhou, Zongpeng Li, **Chuan Wu**. "Virtualized Resource Sharing in Cloud Radio Access Networks: An Auction Approach", in *Elsevier Computer Communications Journal*, vol. 114, no. C, pp. 22-35, December 2017.
- [J45] Weijie Shi, **Chuan Wu**, Zongpeng Li. "A Shapley-value Mechanism for Bandwidth On Demand between Datacenters," in *IEEE Transactions on Cloud Computing*, vol. 6, no. 1, pp. 19-32, January-March 2018.
- [J46] Ruiting Zhou, Zongpeng Li, **Chuan Wu**. "Scheduling Frameworks for Cloud Container Services," in *IEEE/ACM Transactions on Networking*, vol. 26, no. 1, pp. 436-450, February 2018.
- [J47] Ruiting Zhou, Zongpeng Li, **Chuan Wu**. "An Online Emergency Demand Response Mechanism for Cloud Computing," in *ACM Transactions on Modeling and Performance Evaluation of Computing Systems*, vol. 3, no. 5, February 2018.
- [J48] Yongzheng Jia, **Chuan Wu**, Zongpeng Li, Franck Le, Alex Liu. "Online Scaling of NFV Service Chains across Geo-distributed Datacenters," in *IEEE/ACM Transactions on Networking*, vol. 26, no. 2, pp. 699-710, April 2018.
- [J49] Ruiting Zhou, Zongpeng Li, **Chuan Wu**. "A Truthful Online Mechanism for Location-Aware Tasks in Mobile Crowd Sensing," in *IEEE Transactions on Mobile Computing*, vol. 17, no. 8, pp. 1737-1749, August 2018.
- [J50] Jingpu Duan, Xiaodong Yi, Shixiong Zhao, **Chuan Wu**, Heming Cui, Franck Le. "NFVactor: A Resilient NFV System using the Distributed Actor Model," in *IEEE Journal on Selected Areas in Communications (JSAC) Special issue on Network Softwarization & Enablers*, vol. 37, no. 3, pp. 586-599, March 2019.
- [J51] Jingpu Duan, Xiaodong Yi, Junjie Wang, **Chuan Wu**, Franck Le. "NetStar: a Future/Promise Framework for Asynchronous Network Functions," in *IEEE Journal on Selected Areas in Communications (JSAC) Special issue on Network Softwarization & Enablers*, vol. 37, no. 3, pp. 600-612, March 2019.
- [J52] Ruiting Zhou, Zongpeng Li, **Chuan Wu**. "An Efficient Online Placement Scheme for Cloud Container Clusters," in *IEEE Journal on Selected Areas in Communications (JSAC) Special issue on Network Softwarization & Enablers*, vol. 37, no. 5, pp. 1046 - 1058, May 2019.
- [J53] Ziyue Luo, **Chuan Wu**, Zongpeng Li, Wei Zhou. "Scaling Geo-distributed Network Function Chains: A Prediction and Learning Framework," in *IEEE Journal on Selected Areas in Communications (JSAC) Special issue on Network Softwarization & Enablers*, vol. 37, no. 8, pp. 1838 - 1850, August 2019.
- [J54] Jin Wang, Jianping Wang, **Chuan Wu**, Kejie Lu, Naijie Gu. "Enhancing the Anonymity in Information Diffusion Based on Obfuscated Coded Data," in *IEEE Transactions on Network Science and Engineering*, vol. 6, no. 4, pp. 968-982, October-December 2019.
- [J55] Qihang Sun, Shaolei Ren, **Chuan Wu**. "Fair Online Power Capping for Emergency Handling in Multi-Tenant Cloud Data Centers," in *IEEE Transactions on Cloud*

Computing, vol. 8, No. 1, pp. 152-166, January-March 2020.

[J56] Xiaotong Li, Ruiting Zhou, Lei Jiao, **Chuan Wu**, Zongpeng Li. "Online Placement and Scaling of Geo-distributed Machine Learning Jobs via Volume-discounting Brokerage," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 41, No. 4, pp. 948-966, April 2020.

[J57] Ziyue Luo, **Chuan Wu**. "An Online Algorithm for VNF Service Chain Scaling in Datacenters," in *IEEE/ACM Transactions on Networking*, vol. 28, No. 3, pp. 1061-1073, June 2020.

[J58] Xiaoxi Zhang, **Chuan Wu**, Zongpeng Li, Francis C.M. Lau. "A Truthful $(1-\epsilon)$ -Optimal Mechanism for On-demand Cloud Resource Provisioning," in *IEEE Transactions on Cloud Computing*, vol. 8, No. 3, pp. 735-748, July-September 2020.

[J59] Xiaoyang Zhao, Zhi Zhu, MingShan Liu, Chongyu Zhao, Yafei Zhao, Jia Pan, Zheng Wang, **Chuan Wu**. "A Smart Robotic Walker with Intelligent Close-proximity Interaction Capabilities for Elderly Mobility Safety," in *Frontiers in Neurorobotics*, October 2020.

[J60] Xiaoxi Zhang, Zhiyi Huang, **Chuan Wu**, Zongpeng Li, Francis C.M. Lau. "Dynamic VM Scaling: Provisioning and Pricing through an Online Auction," in *IEEE Transactions on Cloud Computing*, vol. 9, No. 1, pp. 131-144, January-March 2021.

[J61] Le Fang, Yu Wu, **Chuan Wu**, Yizhou Yu. "A Non-Intrusive Elderly Home Monitoring System," in *IEEE Internet of Things Journal*, vol. 8, No. 4, pp. 2603-2614, February 2021.

[J62] Yanghua Peng, Yixin Bao, Yangrui Chen, **Chuan Wu**, Chen Meng, Wei Lin. " DL^2 : A Deep Learning-driven Scheduler for Deep Learning Clusters," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 32, No. 8, pp. 1947-1960, August 2021.

[J63] Bingqian Du, Zhiyi Huang, **Chuan Wu**. "Adversarial Deep Learning for Online Resource Allocation," in *ACM Transactions on Modeling and Performance Evaluation of Computing Systems*, vol. 6, No. 4, pp. 1-25, December 2021.

[J64] Menglu Yu, Jia Liu, **Chuan Wu**, Bo Ji, Elizabeth S. Bentley. "Toward Efficient Online Scheduling for Distributed Machine Learning Systems," in *IEEE Transactions on Network Science and Engineering*, vol. 9, No. 4, pp. 1951-1969, July-August 2022.

[J65] Le Fang, Bingqian Du, **Chuan Wu**. "Differentially Private Recommender System with Variational Autoencoders," *Elsevier Knowledge-Based Systems Journal*, vol. 250, 17 August 2022.

[J66] Xiaodong Yi, Shiwei Zhang, Lansong Diao, **Chuan Wu**, Zhen Zheng, Shiqing Fan, Siyu Wang, Jun Yang, Wei Lin. "Optimizing DNN Compilation for Distributed Training with Joint OP and Tensor Fusion," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 33, No. 12, pp. 4694 - 4706, December 2022.

[J67] Xiaoyang Zhao, **Chuan Wu**. "Large-scale Machine Learning Cluster Scheduling via Multi-agent Graph Reinforcement Learning," in *IEEE Transactions on Net-*

work and Service Management, vol. 19, No. 4, pp. 4962-4974, December 2022.

[J68] Yangrui Chen, Jiaxuan Youb, Jun He, Yuan Lin, Yanghua Peng, **Chuan Wu**, Yibo Zhu. "SP-GNN: Learning Structure and Position Information from Graphs Learning Systems," in *Elsevier Neural Networks Journal*, vol. 161, pp. 505-514, April 2023.

[J69] Shiji Zhou, Zhi Wang, Chenghao Hu, Yinan Mao, Haopeng Yan, **Chuan Wu**, Shanghang Zhang, Wenwu Zhu. "Caching in Dynamic Environments: a Near-optimal Online Learning Approach," in *IEEE Transactions on Multimedia*, vol. 25, pp. 792-804, 2023.

[J70] Yixin Bao, Yanghua Peng, **Chuan Wu**. "Deep Learning-based Job Placement in Distributed Machine Learning Clusters with Heterogeneous Workloads," in *IEEE/ACM Transactions on Networking*, vol. 31, No. 2, pp. 634-647, April 2023.

[J71] Shiwei Zhang, Xiaodong Yi, Lansong Diao, **Chuan Wu**, Siyu Wang, Wei Lin. "Expediting Distributed DNN Training with Device Topology-Aware Graph Deployment," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 34, No. 4, pp. 1281-1293, April 2023.

[J72] Ruiting Zhou, Jinlong Pang, Qin Zhang, **Chuan Wu**, Lei Jiao, Yi Zhong, Zong-peng Li. "Online Scheduling Algorithm for Heterogeneous Distributed Machine Learning Jobs," in *IEEE Transactions on Cloud Computing*, vol. 11, No. 2, pp. 1514-1529, April-June 2023.

[J73] Yihong Li, Xiaoxi Zhang, Tianyu Zeng, Jingpu Duan, **Chuan Wu**, Di Wu, Xu Chen. "Task Placement and Resource Allocation for Edge Machine Learning: A GNN-based Multi-Agent Reinforcement Learning Paradigm," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 34, no. 12, pp. 3073-3089, December 2023.

[J74] Cheng Pan, Hao Luo, Gary Cheung, Huiquan Zhou, Reynold Cheng, Sarah Cullum, **Chuan Wu**. "Identifying Frailty in Older Adults Receiving Home Care Assessment Using Machine Learning: Examining the Role of Classifier, Feature Selection, and Sample Size," in *JMIR AI*, vol. 3, January 2024.

[J75] Tianyu Zeng, Xiaoxi Zhang, Jingpu Duan, Chao Yu, **Chuan Wu**, Xu Chen. "An Offline-Transfer-Online Framework for Cloud-Edge Collaborative Distributed Reinforcement Learning," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 35, No. 5, pp. 720-731, May 2024.

[J76] Yuchen Zhong, Guangming Sheng, Juncheng Liu, Jinhui Yuan, **Chuan Wu**. "SWIFT: Expedited Failure Recovery for Large-scale DNN Training," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 35, pp. 1644-1656, September 2024.

[J77] Ziyue Luo, Yixin Bao, **Chuan Wu**. "Optimizing Task Placement and Online Scheduling for Distributed GNN Training Acceleration in Heterogeneous Systems," in *IEEE/ACM Transactions on Networking*, vol. 32, No. 5, pp. 3715-3729, October 2024.

[J78] Xiaoyang Zhao, **Chuan Wu**, Xia Zhu. "Dynamic Flow Scheduling for DNN Training Workloads in Data Centers," in *IEEE Transactions on Network and Service Management*, vol. 21, No. 6, pp. 6643-6657, December 2024.

[J79] Bingqian Du, Liyao Xiang, **Chuan Wu**. “Mitigating Unfairness in Differentially-private Federated Learning,” to appear in *ACM Transactions on Modeling and Performance Evaluation of Computing Systems*.

[J80] Meng Lou, Shu Zhang, Hong-Yu Zhou, **Chuan Wu**, Sibe Yang, Yizhou Yu. “TransXNet: Learning Both Global and Local Dynamics with a Dual Dynamic Token Mixer for Visual Recognition,” to appear in *IEEE Transactions on Neural Networks and Learning Systems*.

◇ **International Conference Papers:**

[C1] **Chuan Wu**, Yuwen He, Li Zhao, Yuzhuo Zhong. “Motion Feature Extraction Scheme for Content-based Video Retrieval”, in the Proceeding of *SPIE Storage and Retrieval for Media Databases 2002*, Vol. 4676, pp. 296-305, San Jose, California, January 23-25, 2002.

[C2] **Chuan Wu**, Yufei Ma, Hongjiang Zhang, Yuzhuo Zhong. “Events Recognition by Semantic Inference for Sports Video”, in the Proceeding of the *IEEE International Conference on Multimedia and Expo 2002 (IEEE ICME 2002)*, pp. 805-808, Lausanne, Switzerland, August 26-29, 2002.

[C3] **Chuan Wu**, Baochun Li. “rStream: Resilient Peer-to-Peer Streaming with Rateless Codes,” in the Proceedings of *ACM Multimedia 2005*, pp. 307-310, Singapore, November 6-12, 2005.

[C4] **Chuan Wu**, Baochun Li. “Optimal Peer Selection for Minimum-Delay Peer-to-Peer Streaming with Rateless Codes,” in the Proceedings of *ACM Workshop on Advances in Peer-to-Peer Multimedia Streaming (P2PMMS 2005)*, in conjunction with *ACM Multimedia 2005*, pp. 69-78, Singapore, November 6-12, 2005.

[C5] **Chuan Wu**, Baochun Li. “Echelon: Peer-to-Peer Network Diagnosis with Network Coding,” in the Proceedings of the *Fourteenth IEEE International Workshop on Quality of Service (IEEE IWQoS 2006)*, pp. 20-29, Yale University, New Haven, Connecticut, June 19-21, 2006.

[C6] **Chuan Wu**, Baochun Li. “Strategies of Conflict in Coexisting Streaming Overlays,” in the Proceedings of *IEEE INFOCOM 2007*, pp. 481-489, Anchorage, Alaska, May 6-12, 2007.

[C7] **Chuan Wu**, Baochun Li. “Optimal Rate Allocation in Overlay Content Distribution,” in the Proceedings of *IFIP Networking 2007, also Lecture Notes in Computer Science, Springer*, vol. 4479, pp. 678-690, Atlanta, Georgia, May 14-18, 2007.

[C8] **Chuan Wu**, Baochun Li. “Outburst: Efficient Overlay Content Distribution with Rateless Codes,” in the Proceedings of *IFIP Networking 2007, also Lecture Notes in Computer Science, Springer*, vol. 4479, pp. 1208-1216, Atlanta, Georgia, May 14-18, 2007.

[C9] **Chuan Wu**, Baochun Li, Shuqiao Zhao. “Magellan: Charting Large-Scale Peer-to-Peer Live Streaming Topologies,” in the Proceedings of the *27th IEEE International Conference on Distributed Computing Systems (IEEE ICDCS 2007)*, pp. 62-69, Toronto, Ontario, Canada, June 25-29, 2007.

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- [C109] Shiqing Fan, Yi Rong, Chen Meng, Zongyan Cao, Siyu Wang, Zheng Zhen, **Chuan Wu**, Guoping Long, Jun Yang, Lixue Xia, Lansong Diao, Xiaoyong Liu, Wei Lin. “DAPPLE: A Pipelined Data Parallel Approach for Large Models Training,” in the Proceedings of *the 26th ACM SIGPLAN Annual Symposium on Principles and Practice of Parallel Programming (PPoPP’21)*, Seoul, South Korea, February 27-March 3, 2021.
- [C110] Zhe Zhang, **Chuan Wu**, Zongpeng Li. “Near-Optimal Topology-adaptive Parameter Synchronization in Distributed DNN Training,” in the Proceedings of *IEEE INFOCOM*, online, May 10-13, 2021.
- [C111] Menglu Yu, **Chuan Wu**, Bo Ji, Jia Liu. “A Sum-of-Ratios Multi-Dimensional-Knapsack Decomposition for DNN Resource Scheduling,” in the Proceedings of *IEEE INFOCOM*, online, May 10-13, 2021.
- [C112] Jingyan Jiang, Ziyue Luo, Chenghao Hu, Zhaoliang He, Zhi Wang, Shutao Xia, **Chuan Wu**. “Joint Model and Data Adaptation for Cloud Inference Serving,” in the Proceedings of *the 42th IEEE Real-time Systems Symposium (RTSS)*, Dortmund, Germany, December 7-10, 2021.

- [C113] Ziyue Luo, Xiaodong Yi, Guoping Long, Shiqing Fan, **Chuan Wu**, Wei Lin. “Efficient Pipeline Planning for Expedited Distributed DNN Training,” in the Proceedings of *IEEE INFOCOM*, online, May 2-5, 2022.
- [C114] Ziyue Luo, Yixin Bao, **Chuan Wu**. “Optimizing Task Placement and On-line Scheduling for Distributed GNN Training Acceleration,” in the Proceedings of *IEEE INFOCOM*, online, May 2-5, 2022.
- [C115] Menglu Yu, Ye Tian, Bo Ji, **Chuan Wu**, Hridesh Rajan, Jia Liu. “GADGET: Online Resource Optimization for Scheduling Ring-All-Reduce Learning Jobs,” in the Proceedings of *IEEE INFOCOM*, online, May 2-5, 2022.
- [C116] Chongyu Zhao, Wenzhi Guo, Rongwei Wen, Zheng Wang, **Chuan Wu**. “Deep Learning-driven Front-Following within Close Proximity: a Hands-Free Control Model on a Smart Walker,” in the Proceedings of the *2022 IEEE International Conference on Robotics and Automation (ICRA)*, Philadelphia, USA, May 23-27, 2022.
- [C117] Bingqian Du, **Chuan Wu**. “Federated Graph Learning with Periodic Neighbour Sampling,” in the Proceedings of *IEEE/ACM International Symposium on Quality of Service (IWQoS)*, online, June 10-12, 2022.
- [C118] Hanpeng Hu, Chenyu Jiang, Yuchen Zhong, Yanghua Peng, **Chuan Wu**, Yibo Zhu, Haibin Lin. “dPRO: A Generic Performance Diagnosis and Optimization Toolkit for Expediting Distributed DNN Training,” in the Proceedings of the *Fifth Conference on Machine Learning and Systems (MLSys)*, August 29 - September 1, 2022.
- [C119] Shiwei Zhang, Lansong Diao, **Chuan Wu**, Siyu Wang, Wei Lin. “Accelerating Large-Scale Distributed Neural Network Training with SPMD Parallelism,” in the Proceedings of the *13th ACM Symposium on Cloud Computing (SOCC’22)*, San Francisco, CA, November 7-11, 2022.
- [C120] Yangrui Chen, Cong Xie, Meng Ma, Juncheng Gu, Yanghua Peng, Haibin Lin, **Chuan Wu**, Yibo Zhu. “SAPipe: Staleness-Aware Pipeline for Data Parallel DNN Training,” in the Proceedings of the *Thirty-sixth Conference on Neural Information Processing Systems (NeurIPS)*, New Orleans, USA, November 29-December 1, 2022.
- [C121] Yuchen Zhong, Guangming Sheng, Juncheng Liu, Jinhui Yuan, **Chuan Wu**. “Swift: Expedited Failure Recovery for Large-scale DNN Training,” in the Proceedings of the *28th ACM SIGPLAN Annual Symposium on Principles and Practice of Parallel Programming (PPoPP’23)*, Montreal, Canada, Feb 25 - Mar 1, 2023 (poster paper).
- [C122] Yangrui Chen*, Tianfeng Liu*, Dan Li, **Chuan Wu**, Yibo Zhu, Jun He, Yanghua Peng, Hongzheng Chen, Hongzhi Chen, Chuanxiong Guo. “BGL: GPU-Efficient GNN Training by Optimizing Graph Data I/O and Preprocessing,” in the Proceedings of the *20th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, Boston, MA, USA, April 17-19, 2023. (*: co-first authors)
- [C123] Zhe Zhang, Ziyue Luo, **Chuan Wu**. “Two-level Graph Caching for Expediting Distributed GNN Training,” in the Proceedings of *IEEE INFOCOM*, New York, USA, May 17-20, 2023.

- [C124] Yihong Li, Tianyu Zeng, Xiaoxi Zhang, Jingpu Duan, **Chuan Wu**. “TapFinger: Task Placement and Fine-Grained Resource Allocation for Edge Machine Learning,” in the Proceedings of *IEEE INFOCOM*, New York, USA, May 17-20, 2023.
- [C125] Borui Wan, Juntao Zhao, **Chuan Wu**. “Adaptive Message Quantization and Parallelization for Distributed Full-graph GNN Training,” in the Proceedings of *the Sixth Conference on Machine Learning and Systems (MLSys)*, Miami, USA, June 4 - 8, 2023.
- [C126] Le Fang, **Chuan Wu**. “HES: Edge Sampling for Heterogeneous Graphs,” in the Proceedings of *the International Joint Conference on Neural Networks (IJCNN)*, Queensland, Australia, June 18 - 23, 2023.
- [C127] Jiyue Jiang, Sheng Wang, Qintong Li, Lingpeng Kong, **Chuan Wu**. “A Cognitive Stimulation Therapy Dialogue System with Multi-Source Knowledge Fusion for Elders with Cognitive Impairment,” in the Proceedings of *The 61st Annual Meeting of the Association for Computational Linguistics (ACL)*, Toronto, Canada, July 9-14, 2023.
- [C128] Junwei Su, Difan Zou, Zijun Zhang, **Chuan Wu**. “Towards Robust Graph Incremental Learning on Evolving Graphs,” in the Proceedings of *the Fortieth International Conference on Machine Learning (ICML)*, Honolulu, Hawaii, USA, July 23-29, 2023.
- [C129] Yuran Sun, Alan Dougherty, Zhuoying Zhang, Yi King Choi, **Chuan Wu**. “MixSynthFormer: A Transformer Encoder-like Structure with Mixed Synthetic Self-attention for Efficient Human Pose Estimation,” in the Proceedings of *the International Conference on Computer Vision (ICCV)*, Paris, France, October 2-6, 2023.
- [C130] Chenyu Jiang, Zhen Jia, Yida Wang, Shuang Zheng, **Chuan Wu**. “DynaPipe: Optimizing Multi-task Training through Dynamic Pipelines,” in the Proceedings of *EuroSys 2024*, Athens, Greece, April 22-25, 2024.
- [C131] Hanpeng Hu, Junwei Su, Juntao Zhao, Yanghua Peng, Yibo Zhu, Haibin Lin, **Chuan Wu**. “CDMPP: A Device-Model Agnostic Framework for Latency Prediction of Tensor Programs,” in the Proceedings of *EuroSys 2024*, Athens, Greece, April 22-25, 2024.
- [C132] Shiwei Zhang, Lansong Diao, **Chuan Wu**, Zongyan Cao, Siyu Wang, Wei Lin. “HAP: SPMD DNN Training on Heterogeneous GPU Clusters with Automated Program Synthesis,” in the Proceedings of *EuroSys 2024*, Athens, Greece, April 22-25, 2024.
- [C133] Juntao Zhao, Borui Wan, **Chuan Wu**, Yanghua Peng, Haibin Lin. “LLM-PQ: Serving LLM on Heterogeneous Clusters with Phase-Aware Partition and Adaptive Quantization,” in the Proceedings of *the 29th ACM SIGPLAN Annual Symposium on Principles and Practice of Parallel Programming (PPoPP’24)*, Edinburgh, United Kingdom, March 2-6, 2024 (poster paper).
- [C134] Junwei Su, Difan Zou, **Chuan Wu**. “PRES: Toward Scalable Memory-Based Dynamic Graph Neural Networks,” in the Proceedings of *The Twelfth International Conference on Learning Representations (ICLR)*, Vienna, Austria, May 7-11, 2024.
- [C135] Junwei Su, Difan Zou, **Chuan Wu**. “Improving Implicit Regularization of SGD with Preconditioning for Least Square Problems,” in the Proceedings of *ICLR*

2024 Workshop on Bridging the Gap Between Practice and Theory in Deep Learning (BGPT), Vienna, Austria, May 11, 2024.

[C136] Xiaoxi Zhang, Haoran Xu, Longhao Zou, Jingpu Duan, **Chuan Wu**, Yali Xue, Zouzhou Chen, Xu Chen. “Rosevin: Employing Resource- and Rate-Adaptive Edge Super-Resolution for Video Streaming,” in the Proceedings of *IEEE INFOCOM*, Vancouver, Canada, May 20-23, 2024.

[C137] Bingqian Du, Jun Liu, Ziyue Luo, **Chuan Wu**, Qiankun Zhang, Hai Jin. “Expediting Distributed GNN Training with Feature-only Partition and Optimized Communication Planning,” in the Proceedings of *IEEE INFOCOM*, Vancouver, Canada, May 20-23, 2024.

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[C139] Ye Tian, Zhen Jia, Ziyue Luo, Yida Wang, **Chuan Wu**. “DiffusionPipe: Training Large Diffusion Models with Efficient Pipelines,” in the Proceedings of the *Seventh Conference on Machine Learning and Systems (MLSys)*, Santa Clara, USA, May 13 - 16, 2024.

[C140] Chenyu Jiang, Ye Tian, Zhen Jia, **Chuan Wu**, Yida Wang, Shuai Zheng. “Lancet: Accelerating Mixture-of-Experts Training by Overlapping Weight Gradient Computation and All-to-All Communication,” in the Proceedings of the *Seventh Conference on Machine Learning and Systems (MLSys)*, Santa Clara, USA, May 13 - 16, 2024.

[C141] Xiaoyang Zhao, Zhe Zhang, **Chuan Wu**. “AdapCC: Making Collective Communication in Distributed Machine Learning Adaptive,” in the Proceedings of the *44th International Conference on Distributed Computing Systems (ICDCS)*, Jersey City, New Jersey, USA, July 23 - 26, 2024.

[C142] Junwei Su, Difan Zou, **Chuan Wu**. “On the Limitation and Experience Replay for GNNs in Continual Learning,” in the Proceedings of the *Third Conference on Lifelong Learning Agents (CoLLAs)*, Pisa, Italy, July 29 - August 01, 2024.

[C143] Sheng Wang, Liheng Chen, Jiyue Jiang, Boyang Xue, Lingpeng Kong, **Chuan Wu**. “LoRA Meets Dropout under a Unified Framework,” in the Proceedings of The *62nd Annual Meeting of the Association for Computational Linguistics (ACL)*, Bangkok, Thailand, August 11-16, 2024.

[C144] Sheng Wang, Boyang Xue, Jiacheng Ye, Jiyue Jiang, Liheng Chen, Lingpeng Kong, **Chuan Wu**. “PRoLoRA: Partial Rotation Empowers More Parameter-Efficient LoRA,” in the Proceedings of The *62nd Annual Meeting of the Association for Computational Linguistics (ACL)*, Bangkok, Thailand, August 11-16, 2024.

[C145] Guangming Sheng, Junwei Su, Chao Huang, **Chuan Wu**. “MSPipe: Efficient Temporal GNN Training via Staleness-aware Pipeline,” in the Proceedings of *ACM KDD*, Barcelona, Spain, August 25-29, 2024.

[C146] Chi Zhang, Guangming Sheng, Siyao Liu, Jiahao Li, Fengzi Yuan, Zherui Liu, Xin Liu, Xiaoying Jia, Yanghua Peng, Haibin Lin, **Chuan Wu**. “A Framework for Training Large Language Models for Code Generation via Proximal Policy

Optimization,” in the Proceedings of *NL2Code Workshop of ACM KDD*, Barcelona, Spain, August 25–29, 2024.

[C147] Junwei Su, **Chuan Wu**. “On the Topology Awareness and Generalization Performance of Graph Neural Networks,” in the Proceedings of *The 18th European Conference on Computer Vision (ECCV)*, Milan, Italy, Sep 29 – Oct 4, 2024. (Best paper candidates award - one of the 15 award candidates)

[C148] Xiaoyang Zhao, Siran Yang, Jiamang Wang, Lansong Diao, Lin Qu, **Chuan Wu**. “FaPES: Enabling Efficient Elastic Scaling for Serverless Machine Learning Platforms,” in the Proceedings of *the 15th ACM Symposium on Cloud Computing (SOCC)*, Redmond, Washington, USA, November 20-22, 2024.

[C149] Haoran Xu, Xiaoxi Zhang, Jingpu Duan, **Chuan Wu**, Jinhang Zuo, Xuan Zeng, Chen Chen, Yubing Qiu and Xu Chen. “Multipath Transmissions and Video Frame Scheduling for Content Delivery Networks,” in the Proceedings of *the 17th International Conference on Networking, Architecture and Storage (NAS)*, Guangzhou, China, November 29-December 1, 2024.

[C150] Tianzuo Qin, Junwei Su, **Chuan Wu**. “HEGformer: Representation Learning on Heterogeneous Graph Neural Network with Efficient Transformer,” in the Proceedings of *the 15th IEEE International Conference on Knowledge Graphs (ICKG2024)*, Abu Dhabi, UAE, December 11-12, 2024.

[C151] Jiacheng Ye, Shansan Gong, Liheng Chen, Lin Zheng, Jiahui Gao, Han Shi, **Chuan Wu**, Xin Jiang, Zhenguo Li, Wei Bi, Lingpeng Kong. “Diffusion of Thought: Chain-of-Thought Reasoning in Diffusion Language Models,” in the Proceedings of *the Thirty-eight Conference on Neural Information Processing Systems (NeurIPS)*, Vancouver, Canada, December 9-15, 2024.

[C152] Ziwei Zhan, Wenkuan Zhao, Yuanqing Li, Weijie Liu, Xiaoxi Zhang, Cheewei Tanan, **Chuan Wu**, Deke Guo, Xu Chen. “FedMoE-DA: Federated Mixture of Experts via Domain Aware Fine-grained Aggregation,” in the Proceedings of *the 20th International Conference on Mobility, Sensing and Networking (MSN 2024)*, Harbin, China, December 20-22, 2024.

[C153] Guangming Sheng, Chi Zhang, Zilingfeng Ye, Xibin Wu, Wang Zhang, Ru Zhang, Yanghua Peng, Haibin Lin, **Chuan Wu**. “HybridFlow: A Flexible and Efficient RLHF Framework,” in the Proceedings of *EuroSys 2025*, Rotterdam, The Netherlands, March 30 - April 3, 2025.

[C154] Yuran Sun, Zhuoying Zhang, Zhenxiao Luo, Alan W. Dougherty, Owen Yip Man Ho, Yi-King Choi, **Chuan Wu**. “SAILS: A Synchronous Accessible Immersive Online Learning System for Young Learners,” in the Proceedings of *The 16th ACM Multimedia Systems Conference (MMSys)*, Stellenbosch, South Africa, March 31-April 3, 2025.

[C155] Sheng Wang, Liheng Chen, Pengan Chen, Jingwei Dong, Boyang Xue, Jiyue Jiang, Lingpeng Kong, **Chuan Wu**. “MoS: Unleashing Parameter Efficiency of Low-Rank Adaptation with Mixture of Shards,” in the Proceedings of *The Thirteenth International Conference on Learning Representations (ICLR)*, Singapore, April 24-28, 2025.

[C156] Qintong Li, Jiahui Gao, Sheng Wang, Renjie Pi, Xueliang Zhao, **Chuan Wu**,

Xin Jiang, Zhenguo Li, Lingpeng Kong. “Forewarned is Forearmed: Harnessing LLMs for Data Synthesis via Failure-induced Exploration,” in the Proceedings of *The Thirteenth International Conference on Learning Representations (ICLR)*, Singapore, April 24-28, 2025.

[C157] Borui Wan, Mingji Han, Yiyao Sheng, Yanghua Peng, Haibin Lin, Mofan Zhang, Zhichao Lai, Menghan Yu, Junda Zhang, Zuquan Song, Xin Liu, **Chuan Wu**. “BCP: A Unified Checkpointing System for Large Foundation Model Development,” in the Proceedings of *the 22th USENIX Symposium on Networked Systems Design and Implementation (NSDI)*, Philadelphia, PA, USA, April 28–30, 2025.

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[C159] Mengfan Liu, Wei Wang, **Chuan Wu**. “Optimizing Distributed Deployment of Mixture-of-Experts Model Inference in Serverless Computing,” in the Proceedings of *IEEE INFOCOM*, London, United Kingdom, May 19-22, 2025.

[C160] Chongyu Zhao, Lingyu Guo, Rongwei Wen, Yanrui Wang, **Chuan Wu**. “Depth-Temporal Attention with Dual Modality Data for Walking Intention Prediction in Close-Proximity Front-Following,” in the Proceedings of *the 2025 IEEE International Conference on Robotics and Automation (ICRA)*, Atlanta, USA, May 19-23, 2025.

PATENTS

[P1] Invention: “Smart Walker”; Hong Kong Standard Patent No.: HK 30070283; Date of Grant: October 21, 2022; Duration: 8 years commencing on May 20, 2022

[P2] Invention: “Chinese Dialogue System For Cognitively Impaired Adults Based On Cognitive Stimulation Therapy Principles”; Hong Kong Standard Patent No.: HK30107558; Date of Grant: October 18, 2024; Duration: 8 years commencing on June 19, 2024

[P3] Invention: “Electronic Chessboard”; Hong Kong Standard Patent No.: HK30107561; Date of Grant: October 18, 2024; Duration: 8 years commencing on July 9, 2024

[P4] Invention: “Smart Walker”; US Patent No.: US 12,156,846 B2, Date of Grant: December 3, 2024; China Patent No.: ZL 2022 2 1236956.8, Date of Grant: December 13, 2024.

OPEN-SOURCE PROJECTS

[O1] “NFVactor: A Resilient NFV System using the Distributed Actor Model”: project source code available at <https://github.com/duanjp8617/nfvactor>

[O2] “deTector: a Topology-aware Monitoring System for Data Center Networks”: project source code available at <https://github.com/pengyanghua/deTector>

[O3] “NetStar: a Future/Promise Framework for Asynchronous Network Functions”: project source code available at <https://github.com/duanjp8617/netstar-project>

[O4] “Optimus: An Efficient Dynamic Resource Scheduler for Deep Learning Clus-

ters”: project source code available at
<https://github.com/pengyanghua/optimus>

[O5] “A Generic Communication Scheduler for Distributed DNN Training Acceleration”: project source code available at (Star: 3.5k)
<https://github.com/bytedance/bytewise/tree/bytescheduler/bytescheduler>

[O6] “Optimizing Distributed Training Deployment in Heterogeneous GPU Clusters”: project source code available at
<https://github.com/eval-submissions/HeteroG>

[O7] “Fast Training of Deep Learning Models over Multiple GPUs”: project source code available at
<https://github.com/eval-submissions/FastT>

[O8] “ DL^2 : A Deep Learning-driven Scheduler for Deep Learning Clusters”: project source code available at <https://github.com/pengyanghua/DL2>

[O9] “dPRO: A Generic Performance Diagnosis and Optimization Toolkit for Expediting Distributed DNN Training”: project source code available at
<https://github.com/joapolarbear/dpro>

[O10] “Optimizing DNN Compilation for Distributed Training with Joint OP and Tensor Fusion”: <https://github.com/TPDS-Submission/Disco>

[O11] “Expediting Distributed DNN Training with Device Topology-Aware Graph Deployment”: <https://github.com/ylxdzsw/tge>

[O12] “Accelerating Large-Scale Distributed Neural Network Training with SPMD Parallelism”: <https://github.com/ylxdzsw/hidup>

[O13] “Adaptive Message Quantization and Parallelization for Distributed Full-graph GNN Training”: <https://github.com/raywan-110/AdaQP>

[O14] “QSync: Quantization-Minimized Synchronous Distributed Training Across Hybrid Devices”: <https://github.com/bytedance/QSync>

[O15] GNNFlow: <https://github.com/jasperzhong/GNNFlow>

[O16] “CDMPP: A Device-Model Agnostic Framework for Latency Prediction of Tensor Programs”: <https://github.com/joapolarbear/cdmpp>

[O17] “DynaPipe: Optimizing Multi-task Training through Dynamic Pipelines”: <https://github.com/aws-labs/optimizing-multitask-training-through-dynamic-pipelines>

[O18] “HAP: SPMD DNN Training on Heterogeneous GPU Clusters with Automated Program Synthesis”: <https://github.com/alibaba/hap>

[O19] “Lancet: Accelerating Mixture-of-Experts Training by Overlapping Weight Gradient Computation and All-to-All Communication”:
<https://github.com/aws-labs/Lancet-Accelerating-MoE-Training-via-Whole-Graph-Computation-Communication-Overlapping>

[O20] “SWIFT: Expedited Failure Recovery for Large-scale DNN Training”:
<https://github.com/jasperzhong/swift>

[O21] “Dynamic Flow Scheduling for DNN Training Workloads in Data Centers”: <https://github.com/joeyyoung/mlcc>

[O22] “AdapCC: Making Collective Communication in Distributed Machine Learning Adaptive”: <https://github.com/joeyyoung/adapcc>

[O23] “MSPipe: Efficient Temporal GNN Training via Staleness-aware Pipeline”: <https://github.com/PeterSH6/MSPipe>

[O24] “BGL: GPU-Efficient GNN Training by Optimizing Graph Data I/O and Pre-processing”: https://github.com/leodestiny/BGL_NSDI2023

[O25] “HybridFlow: A Flexible and Efficient RLHF Framework”: <https://github.com/volcengine/verl>

EDITORIAL BOARD MEMBERSHIP

- ◇ Associate Editor, IEEE Transactions on Multimedia, July 2017 - July 2021
- ◇ Associate Editor, ACM Transactions on Modeling and Performance Evaluation of Computing Systems, 2017-present
- ◇ Associate Editor, IEEE Transactions on Cloud Computing, March 2018 - October 2022
- ◇ Associate Editor, IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), February 2019 - Dec 31, 2022
- ◇ Associate Editor, IEEE/ACM Transactions on Networking (ToN), January 2021 - present

TEACHING ACTIVITIES

- ◇ Serving as Departmental Curriculum Development Committee Chair (2018—2021): handling various curriculum development and course revamp matters
- ◇ Serving as the programme coordinator of HKU-Tsinghua CS dual degree program (to start in Fall 2021), and responsible for designing the dual-degree curriculum
- ◇ COMP9602 - Convex Optimization: taught in Fall 2009, Fall 2010, Fall 2011, Spring 2014, Spring 2015, Spring 2017, Fall 2018, Fall 2020, Fall 2023
- ◇ CSIS0234B/COMP3234 - Computer and Communication Networks: taught in Spring 2009, Spring 2010, Spring 2011, Spring 2012, Spring 2020, Spring 2021, Spring 2024
- ◇ CSIS0322/COMP3322 - Modern Technologies on World Wide Web: taught in Fall 2012, Fall 2013, Spring 2015, Fall 2015, Fall 2016, Fall 2017, Spring 2018, Spring 2019, Fall 2019, Spring 2022, Fall 2022
- ◇ CSIS7304 - The Wireless Internet and Mobile Computing: taught in Spring 2009

INTERNATIONAL ◇ Workshop Co-Chair, ACM Co-NEXT 2025.

PROFESSIONAL SERVICE

- ◇ Guest Editor: IEEE Network, Special Issue on “Interplay between Machine Learning and Networking Systems”, 2023
- ◇ Steering committee member, IEEE/ACM International Symposium on Quality of Service (IWQoS), January 1, 2019 - January 1, 2022.
- ◇ Steering committee member, the 15th EAI International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness (QShine)

2019), Hong Kong.

- ◇ Steering committee member, the International Workshop on Intelligent Cloud Computing and Networking (ICCN) in conjunction with IEEE INFOCOM, 2019-present.
- ◇ “Distributed Systems for AI/ML” track co-chair, IEEE ICDCS, Glasgow, Scotland, 2025.
- ◇ Area TPC Chair, IEEE INFOCOM, Vancouver, Canada, 2021.
- ◇ Workshop Co-Chair, IEEE INFOCOM, Toronto, Canada, 2020.
- ◇ Demo/Poster Co-Chair, IEEE INFOCOM, Paris, France, 2019.
- ◇ TPC Co-Chair, the 26th IEEE/ACM International Symposium on Quality of Service (IWQoS), Banff, Canada, 2018.
- ◇ TPC Co-Chair, the 28th ACM SIGMM Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV), Amsterdam, The Netherlands, 2018.
- ◇ Area Chair (“Multimedia Transport and Delivery” Track), ACM Multimedia Conference, Seoul, South Korea, 2018.
- ◇ Co-Chair for Special Session “Cloud-based Multimedia”, ACM Multimedia Systems Conference (ACM MMSys), Taipei, Taiwan, 2017.
- ◇ Demo/Poster Co-Chair, IEEE ICNP, Toronto, Canada, 2017.
- ◇ Poster Co-Chair, ACM e-Energy, Hong Kong, 2017.
- ◇ Demo Co-Chair, ITC 29, Genoa, 2017.
- ◇ Demo/Poster Co-Chair, IEEE INFOCOM, Hong Kong, 2015.
- ◇ Demo Chair, ACM Multimedia Systems Conference (ACM MMSys), Portland, Oregon, 2015.
- ◇ Chair of Interest Group on Multimedia services and applications over Emerging Networks (MEN), IEEE Multimedia Communication Technical Committee (MMTC), 2012-2014.
- ◇ Publication Chair, the 2011 International Conference on Cloud and Service Computing (CSC2011), Hong Kong, December 12-14, 2011.
- ◇ Program Track Co-Chair (“Pervasive, Grid, P2P and Cloud Computing” track), the 6th International Conference on Frontier of Computer Science and Technology (FCST-11), Changsha, China, November 16-18, 2011.
- ◇ Poster Session Co-Chair, the 17th IEEE International Workshop on Quality of Service (IEEE IWQoS 2010), Beijing, China, June 16-18, 2010.
- ◇ Membership in Technical Program Committees:
 - IEEE INFOCOM: 2011—2025
 - IEEE ICNP: 2023
 - ACM Mobihoc: 2020-2024
 - ACM International Conference on Information and Knowledge Management (CIKM): 2019
 - ACM SIGMETRICS: 2016

ACM International Conference on Multimedia (ACM Multimedia): 2023, 2018, 2016, 2014, 2012, 2011, 2009
ACM Multimedia Systems Conference (MMSys): 2013
IEEE International Conference on Data Mining (ICDM): 2021, 2020, 2018
IEEE International Conference on Distributed Computing Systems (ICDCS): 2011, 2022, 2023
IEEE International Conference on Network Protocols (ICNP): 2022, 2021, 2011
IEEE International Conference on Communications (ICC): 2018, 2010-2016
IEEE Global Communications Conference (GLOBECOM): 2017, 2012, 2011, 2010, 2009
IEEE International Conference on Parallel and Distributed Systems (ICPADS): 2016, 2012
IEEE International Conference on Computer Communications and Networks (ICCCN): 2011, 2010
IEEE International Conference on Multimedia and Expo (ICME): 2017
IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication System (MASCOTS): 2017
IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS): 2022, 2018
IEEE Wireless Communications and Networking Conference (WCNC): 2013
IEEE International Conference on Mobile Ad-hoc and Sensor Networks (MSN): 2012
IEEE Consumer Communications and Networking Conference (CCNC): 2011, 2010
IEEE International Conference on Cloud Engineering (IC2E): 2018
IFIP Networking: 2023, 2020, 2019, 2017, 2012
ACM/IEEE International Symposium on Quality of Service (ACM/IEEE IWQoS): 2014-2017, 2019 - 2023
ACM Workshop on Network and Operating Systems Support for Digital Audio and Video (NOSSDAV): 2017, 2014, 2013, 2012
ACM e-Energy: 2018
IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid): 2013

FACULTY AND
DEPARTMENTAL
SERVICE

- ◇ Associated Member of the Institute of Mathematical Research (IMR), The University of Hong Kong
- ◇ Member of HKU Musketeers Foundation Institute of Data Science, May 1, 2022 to April 30, 2025
- ◇ Member of Global Innovation Centre Working Group on Public Relations (PR): 2023 - present
- ◇ Member of Physical Sciences and Engineering Panel of the University Selection and Promotion Committee (USPC): March 1, 2022 — November 30, 2025
- ◇ Member of HKU Presidential Scholarship selection panel: 2020-2022, 2024-2025
- ◇ Assistant Dean of Faculty of Engineering (Research) and Director of Research Student Centre: June 28 2021 — August 31 2022
- ◇ Selection panel member of TSSSU@HKU: 2022-2024
- ◇ Faculty Committee on Undergraduate Curricula: member, 2018 — 2021
- ◇ Faculty Curriculum Development Committee: member 2018
- ◇ Faculty Human Resource Committee: member 2016 — 2022
- ◇ Board of Studies in BBA(IS) / Engineering (CS): 2017 — present
- ◇ Associate Department Head: January 2018— June 2019
- ◇ Programme Coordinator for HKU-Tsinghua Dual Degree: 2019 — present
- ◇ Departmental Curriculum Development Committee: Chair, 2018— 2021
- ◇ Departmental Advisory Committee: member, 2018 — present

- ◇ Departmental Staff-Student Consultative Committee: member, 2018 — present
- ◇ Departmental Search Committee: member, 2017 — 2022
- ◇ Departmental Research Committee: member, 2016 — present
- ◇ Departmental Research Postgraduate Committee: member, 2009 — present
- ◇ Programme Committee for the Computer Engineering Course: member, 2009 — 2022
- ◇ Workgroup on Space Issues: member, 2015 — 2019
- ◇ OBL Workgroup: member, 2014 — 2017
- ◇ Exchange Students Coordinator: 2012 — 2018
- ◇ Programme Committee for MSc(CompSc): member, 2011 — 2018
- ◇ Admissions Committee: member, 2009 — 2018
- ◇ China Programme Development Committee: Deputy Chair, 2009 — 2012
- ◇ Mainland UG Student Recruitment Committee: Deputy Chair, 2009 — 2012
- ◇ Mainland Exchange Students Coordinator: 2009 — 2012
- ◇ Committee on Advanced Undergraduate Training: member, 2009 — 2011
- ◇ Served as interviewer in the University's mainland undergraduate interview trips to Beijing and Xi'an, in January and June 2010, respectively

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