

Nominee: Dr. Jianchun Liu

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Interested positions: MMTC Secretary



Jianchun Liu

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Biography

I am an Associate Researcher at the School of Computer Science and Technology, University of Science and Technology of China (USTC), and a member of the USTC-INT Group. I received my Ph.D. in the School of Data Science (<http://sds.ustc.edu.cn/>), University of Science and Technology of China (USTC) (<https://www.ustc.edu.cn/>), supervised by Prof. Liusheng Huang (<http://cs.ustc.edu.cn/2010/0614/c3050a23894/page.htm>) and Prof. Hongli Xu (<http://staff.ustc.edu.cn/~xuhongli/>). Before starting my Ph.D. study, I received my Bachelor's degree from North China Electric Power University (NCEPU) (<https://www.ncepu.edu.cn/>) in 2017. I am broadly interested in software defined networking, network function virtualization, data center networks, edge computing, federated learning and Internet of Things.

Education

- Ph.D Sept.2019 - Jun.2022, School of Data Science, University of Science and Technology of China (USTC)
- M.S. Sept.2017 - Aug.2019, School of Computer Science and Technology, University of Science and Technology of China (USTC)
- B.S. Sept.2013 - Jun.2017, Department of Computer, North China Electric Power University (NCEPU)

Selected News

- 2024.05 One paper has been accepted by WASA 2024.
- 2024.04 Two papers have been accepted by IEEE/ACM IWQoS 2024.
- 2024.04 One paper (FedMigr) has been accepted by IEEE/ACM TNET.
- 2024.03 One paper (Peaches) has been accepted by IEEE TMC.
- 2024.02 One paper (Ferrari) has been accepted by IEEE TMC.
- 2024.02 One paper (FedCD) has been accepted by IEEE IoTJ.
- 2024.01 Invited as the TPC Member of ACM MM2024.
- 2023.12 One paper (Heroes) has been accepted by IEEE INFOCOM 2024.
- 2023.10 One paper (YOGA) has been accepted by IEEE/ACM TNET.
- 2023.10 Congratulations to Qingmin on receiving Huawei Scholarship! 🎉
- 2023.09 One Paper (Finch) has been accepted by IEEE TMC
- 2023.07 One Paper (FedAlt) has been accepted by IEEE/ACM TNET

Selected Publications

2024

[WASA'24] Qianpiao Ma, **Jianchun Liu**, Qingmin Jia, Xiaomao Zhou, Yujiao Hu, Renchao Xie, "Dynamic Staleness Control for Asynchronous Federated Learning in Decentralized Topology ", *International Conference on Wireless Artificial Intelligent Computing Systems and Applications (WASA)*, 2024. (CCF Rank C, Congrats. to Qianpiao! 🎉)

[IWQoS'24] Xianjun Gao, **Jianchun Liu**, Hongli Xu, Qianpiao Ma, Lun Wang, "Towards Communication-Efficient Federated Graph Learning: An Adaptive Client Selection Perspective ", *IEEE/ACM International Symposium on Quality of Service (IWQoS)*, 2024. (CCF Rank B, Congrats. to Xianjun! 🎉)

[IWQoS'24] Bodong Yan, Yangming Zhao, Sun Xu, **Jianchun Liu**, Hongli Xu, "LHCC: Low-Latency and Hi-Precision Congestion Control in RDMA Datacenter Networks ", *IEEE/ACM International Symposium on Quality of Service (IWQoS)*, 2024. (CCF Rank B, Congrats. to Bodong! 🎉)

[TNET] **Jianchun Liu**, Shilong Wang, Hongli Xu, Yang Xu, Yunming Liao, Jinyang Huang, He Huang, "Federated Learning with Experience-Driven Model Migration in Heterogeneous Edge Networks ", *IEEE/ACM Transactions on Networking (ToN)*, 2024. (CCF Rank A, Congrats. to Shilong! 🎉)

[TMC] Jiaming Yan, **Jianchun Liu**, Hongli Xu, Zhiyuan Wang, Chunming Qiao, "Peaches: Personalized Federated Learning with Neural Architecture Search in Edge Computing ", *IEEE Transactions on Mobile Computing (TMC)*, 2024. (CCF Rank A, Congrats. to Jiaming! 🎉)

[TMC] Zhiwei Yao, **Jianchun Liu**, Hongli Xu, Lun Wang, Chen Qian, Yunming Liao, "Ferrari: A Personalized Federated Learning Framework for Heterogeneous Edge Clients ", *IEEE Transactions on Mobile Computing (TMC)*, 2024. (CCF Rank A, Congrats. to Zhiwei! 🎉)

[INFOCOM'24] Jiaming Yan, **Jianchun Liu**, Shilong Wang, Hongli Xu, Haifeng Liu, Jianhua Zhou, "Heroes: Lightweight Federated Learning with Neural Composition and Adaptive Local Update in Heterogeneous Edge Networks ", *IEEE INFOCOM*, 2024. (CCF Rank A, Congrats. to Jiaming! 🎉)

[IoTJ] **Jianchun Liu**, Yujia Huo, Pengcheng Qu, Sun Xu, Zhi Liu, Qianpiao Ma, Jinyang Huang, "FedCD: A Hybrid Federated Learning Framework for Efficient Training with IoT Devices ", *IEEE Internet of Things Journal (IoTJ)*, 2024. (Congrats. to Yujia! 🎉)

[TMC] Zhida Jiang, Yang Xu, Hongli Xu, Zhiyuan Wang, **Jianchun Liu**, "Semi-Supervised Decentralized Machine Learning with Device-to-Device Cooperation ", *IEEE Transactions on Mobile Computing (TMC)*, 2024. (CCF Rank A, Congrats. to Zhida! 🎉)

[TMC] Qianpiao Ma, Yang Xu, Hongli Xu, **Jianchun Liu**, Liusheng Huang, "FedUC: A Unified Clustering Approach for Hierarchical Federated Learning ", *IEEE Transactions on Mobile Computing (TMC)*, 2024. (CCF Rank A, Congrats. to Qianpiao! 🎉)

2023

[TMC'23] Jinyang Huang, Chenlin Miao, Xiang Zhang, **Jianchun Liu**, Lu Su, Zhi Liu, Yu Gu, "PhyFinAtt: An Undetectable Attack Framework Against PHY Layer Fingerprint-based WiFi Authentication ", *IEEE Transactions on Mobile Computing (TMC)*, 2023. (CCF Rank A, Congrats. to Jinyang! 🎉)

[TPDS'23] Zhiyuan Wang, Hongli Xu, Yang Xu, Zhida Jiang, **Jianchun Liu**, Suo Chen, "FAST: Enhancing Federated Learning through Adaptive Data Sampling and Local Training ", *IEEE Transactions on Parallel and Distributed Systems (TPDS)*, 2023. (CCF Rank A, Congrats. to Zhiyuan! 🎉)

[ToN'23] Jun Liu, **Jianchun Liu**, Hongli Xu, Yunming Liao, Zhiyuan Wang, Qianpiao Ma, "YOGA: Adaptive Layer-wise Model Aggregation for Decentralized Federated Learning ", *IEEE/ACM Transactions on Networking (ToN)*, 2023. (CCF Rank A, Congrats. to Jun Liu! 🎉)

[ICPADS'23] Pengcheng Qu, **Jianchun Liu**, Zhiyuan Wang, Qianpiao Ma, Jinyang Huang, "FedCD: A Hybrid Centralized-Decentralized Architecture for Efficient Federated Learning ", *The 29th IEEE International Conference on Parallel and Distributed Systems (ICPADS 2023)*. (CCF Rank C, Congrats. to Pengcheng! 🎉)

[TBD'23] Qianpiao Ma, **Jianchun Liu**, Hongli Xu, Qingmin Jia, Renchao Xie, "FRACTAL: Data-aware Clustering and Communication Optimization for Decentralized Federated Learning ", *IEEE Transactions on Big Data (TBD)*, 2023. (JCR Q1, Congrats. to Qianpiao!)

[TMC'23] **Jianchun Liu**, Jiaming Yan, Hongli Xu, Zhiyuan Wang, Jinyang Huang, Yang Xu, "Finch: Enhancing Federated Learning with Hierarchical Neural Architecture Search ", *IEEE Transactions on Mobile Computing (TMC)*, 2023. (CCF Rank A, Congrats. to Jiaming!) [PDF (paper/23_TMC_Finch_liujianchun.pdf)] [CITE (<https://scholar.googleusercontent.com/scholar.bib?q=info:KQcnKX5sD8sJ:scholar.google.com/&output=citation&scisdr=CIHXztoDEMaSrpwjcus:AFWwaeYAAAAAZTslauvsrQ1907Xa8wrCbaMIDqE&scisCN>)]

[ToN'23] **Jianchun Liu**, Qingmin Zeng, Hongli Xu, Yang Xu, Zhiyuan Wang, He Huang, "Adaptive Block-wise Regularization and Knowledge Distillation for Enhancing Federated Learning ", *IEEE/ACM Transactions on Networking (ToN)*, 2023. (CCF Rank A, Congrats. to Qingmin!) [PDF (paper/23_ToN_liujianchun.pdf)] [CITE (https://scholar.googleusercontent.com/scholar.bib?q=info:IOwHvrEflh4J:scholar.google.com/&output=citation&scisdr=CIHXztoDEMaSrp4TnU:AFWwaeYAAAAAZTy-VvzhJc0plkrx8dK_a38cyis&scisf=4&ct=citation&cd=-1&hl=zh-CN)]

[TMC'23] Zhenguo Ma, Yang Xu, Hongli Xu, Suo Chen, **Jianchun Liu**, Yinxing Xue, "FedLC: Accelerating Asynchronous Federated Learning in Edge Computing ", *IEEE Transactions on Mobile Computing (TMC)*, 2023. (CCF Rank A, Congrats. to Zhenguo!) [PDF (paper/23_TMC_zhenguo.pdf)]

[TMC'23] Yang Xu, Lun Wang, Hongli Xu, **Jianchun Liu**, Zhiyuan Wang, Liusheng Huang, "Enhancing Federated Learning with Server-Side Unlabeled Data by Adaptive Client and Data Selection ", *IEEE Transactions on Mobile Computing (TMC)*, 2023. (CCF Rank A) [PDF (paper/23_TMC_wanglun.pdf)]

[IWQoS'23] Qingmin Zeng, **Jianchun Liu***, Hongli Xu*, Zhiyuan Wang, Yang Xu, Yangming Zhao, "Enhanced Federated Learning with Adaptive Block-wise Regularization and Knowledge Distillation ", *IEEE/ACM International Symposium on Quality of Service (IWQoS)*, 2023. (CCF Rank B) [PDF (paper/23_IWQoS_Qingmin.pdf)]

[TMC'23] Zhida Jiang, Yang Xu, Hongli Xu, Zhiyuan Wang, **Jianchun Liu**, Qian Chen, Chunming Qiao, "Computation and Communication Efficient Federated Learning with Adaptive Model Pruning ", *IEEE Transactions on Mobile Computing (TMC)*, 2023. (CCF Rank A) [PDF (paper/tmc23_jiangzhida.pdf)]

2022

[ICDE'22] **Jianchun Liu**, *Yang Xu, *Hongli Xu, Yunming Liao, Zhiyuan Wang, He Huang, "Enhancing Federated Learning with Intelligent Model Migration in Heterogeneous Edge Computing ", *IEEE International Conference on Data Engineering (ICDE)*, 2022. (CCF Rank A) [PDF (paper/icde22_liujianchun.pdf)]

[TMC'22] Zhenguo Ma, Yang Xu, Hongli Xu, **Jianchun Liu**, Yinxing Xue, "Like Attracts Like: Personalized Federated Learning in Decentralized Edge Computing ", *IEEE Transactions on Mobile Computing*, 2022. (CCF Rank A, JCR Q1, IF=5.577) [PDF (paper/tmc22_wangzhiyuan.pdf)]

[TMC'22] Yang Xu, Yunming Liao, *Hongli Xu, Zhenguo Ma, Lun Wang, **Jianchun Liu**, "Adaptive Control of Local Updating and Model Compression for Efficient Federated Learning ", *IEEE Transactions on Mobile Computing*, 2022. (CCF Rank A, JCR Q1, IF=5.577) [PDF (paper/tmc22_liaoyunming.pdf)]

[ToN'22] Hongli Xu, Peng Xi, Gongming Zhao, **Jianchun Liu**, Chen Qian, Liusheng Huang, "SAFE-ME: Scalable and Flexible Policy Enforcement in Middlebox Networks ", *IEEE/ACM Transactions on Networking*, 2022. (CCF Rank A, JCR Q1, IF=3.56)

[TMC'22] Zhiyuan Wang, *Hongli Xu, **Jianchun Liu**, Yang Xu, He Huang, Yangming Zhao, "Accelerating Federated Learning with Cluster Construction and Hierarchical Aggregation ", *IEEE Transactions on Mobile Computing*, 2022. (CCF Rank A, JCR Q1, IF=5.577) [PDF (paper/tmc22_wangzhiyuan.pdf)]

[ICDE'22] Lun Wang, *Yang Xu, Hongli Xu, **Jianchun Liu**, Zhiyuan Wang, Liusheng Huang, "Enhancing Federated Learning with In-Cloud Unlabeled Data ", *IEEE International Conference on Data Engineering (ICDE)*, 2022. (CCF Rank A) [PDF (paper/icde2022_wanglun.pdf)]

[ComNet'22] Zhiyuan Wang, Hongli Xu, Yang Xu, Zhida Jiang, **Jianchun Liu**, "CoopFL: Accelerating Federated Learning with DNN Partitioning and Offloading in Heterogeneous Edge Computing ", *Computer Networks (ComNet)*, 2022. (CCF Rank B)

2021

[TMC'21] (🔥 **ESI Highly Cited Paper**) **Jianchun Liu**, Hongli Xu, Lun Wang, Chen Qian, Jinyang Huang, He Huang, "Adaptive Asynchronous Federated Learning in Resource-Constrained Edge Computing ", *IEEE Transactions on Mobile Computing*, 2021. (CCF Rank A, JCR Q1, IF=5.577) [PDF (paper/tmc21_liujianchun.pdf)] [CITE (<https://scholar.googleusercontent.com/scholar.bib?q=info:c23Op9rfy3kJ:scholar.google.com/&output=citation&scisdr=CIHXztoDEMaSrpXbRZM:AFWwaeYAAAAAZTtdXZMCLnWmeWLS5o9leE5Wmcd8CN>)]

[ComNet'21] **Jianchun Liu**, Hongli Xu, Yang Xu, Zhenguo Ma, Zhiyuan Wang, Chen Qian, He Huang, "Communication-Efficient Asynchronous Federated Learning in Resource-Constrained Edge Computing ", *Computer Networks*, 2021. (CCF Rank B, JCR Q1, IF=4.474) [PDF (paper/computer_network_liujianchun_21.pdf)]

[TMC'21] Jinyang Huang, Bin Liu, Chenglin Miao, Yan Lu, Qijia Zheng, Yu Wu, **Jianchun Liu**, ChangWen Chen, "PhaseAnti: an Anti-interference WiFi-based Activity Recognition System Using Interference-Independent Phase Component ", *IEEE Transactions on Mobile Computing*, 2021. (CCF Rank A, JCR Q1, IF=5.577) [PDF (paper/tmc21_huangjinyang.pdf)]

[INFOCOM'21] Zhiyuan Wang, Hongli Xu, **Jianchun Liu**, He Huang, Chunming Qiao, Yangming Zhao, "Resource-Efficient Federated Learning with Hierarchical Aggregation in Edge Computing ", *2021 IEEE 40th International Conference on Computer Communications*, Virtual Conference, May 2021. (CCF Rank A) [PDF (paper/Infocom21_wangzhiyuan.pdf)]

[TMC'21] Min Chen, Haichuan Wang, Zeyu Meng, Hongli Xu, Yang Xu, **Jianchun Liu**, He Huang, "Joint Data Collection and Resource Allocation for Distributed Machine Learning at the Edge ", *IEEE Transactions on Mobile Computing*, 2021. (CCF Rank A, JCR Q1, IF=5.577) [PDF (paper/tmc21_chenmin.pdf)]

[ComNet'21] Xuwei Yang, Hongli Xu, **Jianchun Liu**, Chen Qian, Xingpeng Fan, He Huang, Haibo Wang, "Achieving High Reliability and Throughput in Software Defined Networks ", *Computer Networks*, 2021. (CCF Rank B, JCR Q1, IF=4.474) [PDF (paper/computer_network_yangxuwei_21.pdf)]

2020

[INFOCOM'20] **Jianchun Liu**, Hongli Xu, Gongming Zhao, Chen Qian, Xingpeng Fan, Liusheng Huang, "Incremental Server Deployment for Scalable NFV-enabled Networks ", *2020 IEEE 39th International Conference on Computer Communications*, Virtual Conference, July 2020. (CCF Rank A) [PDF (paper/INCOFOM_liujianchun_20.pdf)]

[ToN'20] **Jianchun Liu**, Hongli Xu, Gongming Zhao, Chen Qian, Xingpeng Fan, Xuwei Yang, He Huang, "Incremental Server Deployment for Software-Defined NFV-enabled Networks ", *IEEE/ACM Transactions on Networking*, 2020. (CCF Rank A, JCR Q1, IF=3.56) [PDF (paper/ToN_liujianchun_20.pdf)]

[ComNet'20] Haibo Wang, Hongli Xu, Chen Qian, Juncheng Ge, **Jianchun Liu**, He Huang, "PrePass: Load balancing with data plane resource constraints using commodity SDN switches ", *Computer Networks*, Volume 178, 4 September 2020, 107339. (CCF Rank B, JCR Q1, IF=4.474) [PDF (paper/computer_network_wanghaibo_20.pdf)]

Services

- ACM MM 2024 (TPC Member)
 - IEEE Journal on Selected Areas in Communications
 - IEEE Transactions on Parallel and Distributed Systems
 - IEEE Transactions on Mobile Computing
 - IEEE Transactions on Cognitive Communications and Networking
 - IEEE Transactions on Wireless Communications
 - IEEE Transactions on Big Data
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There's always a way as long as you maintain in good a state of mind!

Dear MMTC Chair:

I am delighted to apply as a candidate for the MMTC Secretary. Throughout my doctoral studies and professional work at University of Science and Technology of China (USTC), I have demonstrated remarkable dedication and enthusiasm towards the research in the areas of Computer Networks, Edge Computing, and Internet of Things. In particular, I have been studying how to improve the model training performance under the resource-constrained edge networks. Correspondingly, I have published 20 authoritative papers as the first author or corresponding author, and 22 influential papers as coauthor, including IEEE TMC, IEEE/ACM ToN, IEEE TPDS , IEEE INFOCOM, and IEEE ICDE.

Additionally, I have actively contributed to the MMTC community through various roles, including serving as a reviewer for multiple MMTC conferences and journals. My involvement as a reviewer allowed me to provide constructive feedback to authors, helping to maintain the high quality of submissions and ensuring the relevance of the content to our community. Additionally, I have participated in several MMTC conferences, where I engaged in discussions and exchanged ideas with peers, further enriching the collaborative spirit of our community. My dedication to these activities reflects my commitment to the growth and success of the MMTC community.

Sincerely,

Jianchun Liu

Associate Researcher

University of Science and Technology of China