Dongqi Cai (蔡栋琪)

PhD Student (Third Year)

School of Computer Science, Beijing University of Posts and Telecommunications, China

Email: cdq@bupt.edu.cn

Homepage: http://www.caidongqi.com/

Research Interests

Federated Learning, Efficient NLP System, Speech Privacy.

Education

09/2021 – present	**PhD in Computer Science and Technology**, BUPT
	• Advisor: Prof. Shangguang Wang, Prof. Mengwei Xu
	• Remote Advisor: Prof. Felix Xiaozhu Lin
09/2017 – 07/2021	**BS in Communication Engineering**, BUPT
	• Advisor: Prof. Lin Fan

Employment & Experience

07/2021 – 12/2021	**Research Intern**, Webank
	• Mentor: Dr. Lixin Fan

Honors & Awards

- Travel Grant, EuroSys/MobiSys, 2024
- National Scholarship, Ministry of Education, 2023
- Outstanding Graduate Student, BUPT, 2023
- Excellent Ph.D. Students Foundation, BUPT, 2023
- Outstanding Graduate Student, State Key Laboratory of Networking and Switching Technology, 2022/2023
- First-class academic scholarship, BUPT, 2022
- National-Level, Innovation and Entrepreneurship Projects for College Students, 2019

Academic Services

- **TPC Member**

MobiSys'24 AE, MobiCom'24 AE, NCSC-edge'22, TURC-SIGBED-China'23

- **Reviewer**

TMC, TKDE, IoTJ, SAGC'22, ICASSP'24.

- **External Reviewer**

EIS'21, ICWS'23

# Conference Publications (* = equal contributions)

(full list at https://scholar.google.com/citations?user=dIimkboAAAAJ&hl=zh-CN)

[1] "FwdFL: Efficient Federated Finetuning of Language Models"

Mengwei Xu (My advisor), **Dongqi Cai**, Yaozong Wu, Xiang Li, Shangguang Wang, in *USENIX Annual Technical Conference (ATC, CCF-A),* 2024.

[2] "FedRDMA: Communication-Efficient Cross-Silo Federated LLM via Chunked RDMA Transmission"

Zeling Zhang*, **Dongqi Cai***, Yiran Zhang, Mengwei Xu, Shangguang Wang, Ao Zhou, in *Proceedings of the 4rd Workshop on Machine Learning and Systems (EuroMLSys), co-located with European Conference on Computer Systems (EuroSys, CCF-A),* 2024.

[3] "Rethinking Mobile AI Ecosystem in the LLM Era"

Jinliang Yuan*, Chen Yang*, **Dongqi Cai***, Shihe Wang, Xin Yuan, Zeling Zhang, Xiang Li, Dingge Zhang, Hanzi Mei, Xianqing Jia, Shangguang Wang, Mengwei Xu, in *Proc. ACM Int. Conf. Mobile Computing and Networking (MobiCom, CCF-A)*, 2024.

[4] "Federated Few-shot Learning for Mobile NLP"

Dongqi Cai, Shangguang Wang, Yaozong Wu, Felix Xiaozhu Lin, Mengwei Xu, in *Proc. ACM Int. Conf. Mobile Computing and Networking (MobiCom, CCF-A)*, 2023.

[5] "Efficient Federated Learning for Modern NLP"

Dongqi Cai, Yaozong Wu, Shangguang Wang, Felix Xiaozhu Lin, Mengwei Xu, in *Proc. ACM Int. Conf. Mobile Computing and Networking (MobiCom, CCF-A)*, 2023.

[6] "Towards Practical Few-shot Federated NLP"

Dongqi Cai, Yaozong Wu, Haitao Yuan, Shangguang Wang, Felix Xiaozhu Lin, Mengwei Xu, in *Proceedings of the 3rd Workshop on Machine Learning and Systems (EuroMLSys), co-located with European Conference on Computer Systems (EuroSys, CCF-A),* 2023.

[7] "GPT4D: Automatic Cross-Version Linux Driver Upgrade Toolkit"

Borui Yang, Hongyu Li, **Dongqi Cai**, in *the 8th EAI International Conference on Machine Learning and Intelligent Communications (MLICOM)*, 2023.

[8] "FedAdapter: Efficient Federated Learning for Mobile NLP"

Dongqi Cai, Shangguang Wang, Yaozong Wu, Mengwei Xu, in *Proceedings of the ACM Turing Award Celebration Conference (TURC)*, 2023.

[9] "Towards ubiquitous learning: A first measurement of on-device training performance"

Dongqi Cai, Qipeng Wang, Yuanqiang Liu, Yunxin Liu, Shangguang Wang, Mengwei Xu, in *Proceedings of the 5th International Workshop on Embedded and Mobile Deep Learning (EMDL), co-located with ACM International Conference on Mobile Systems, Applications, and Services (MobiSys, CCF-B),* 2021.

[10] "Mitigating App Collusion using Machine Learning"

Xuefei Duan, Hua Lu, Jinliang Yuan, Qiyang Zhang, **Dongqi Cai**, in *IEEE 7th International*

Conference on Big Data Intelligence and Computing (DataCom), 2021.

Journal Publications

[1] "Accelerating Vertical Federated Learning"

Dongqi Cai, Tao Fan, Yan Kang, Lixin Fan, Mengwei XU, Shangguang Wang, Qiang Yang, early access in *IEEE Transactions on Big Data (IEEE TBD), 2022.*

[2] "Implementation of an E-payment security evaluation system based on quantum blind computing"

Dongqi Cai, Xi Chen, Yuhong Han, Xin Yi, Jinping Jia, Cong Cao, Ling Fan, in *International Journal of Theoretical Physics (IJTP),* 2020.

Patents

[1] "A Federated Learning Method, System, and Apparatus Based on Forward Gradient"

Mengwei Xu; Yaozong Wu; **Dongqi Cai;** Shangguang Wang

[2] "A Federated Few-Shot Learning Method, System, and Device for Natural Language Models"

Mengwei Xu; **Dongqi Cai**; Ao Zhou; Xiao Ma; Shangguang Wang

[3] "A Federated Learning Method, Device, and System for Pre-trained Models"
Mengwei Xu; **Dongqi Cai**; Ao Zhou; Xiao Ma; Shangguang Wang,

[4] "Vertical Federated Learning Modeling Optimization Method, Device, Medium, and Program"
Dongqi Cai; Lixin Fan; Qiang Yang