

# Dongqi Cai (蔡栋琪)

PhD Student (Third Year)

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## Research Interests

Federated Learning, Efficient NLP System.

## Education

09/2021 – present

**PhD in Computer Science and Technology, BUPT**

- Advisor: Prof. Shangguang Wang, Prof. Mengwei Xu
- Remote Advisor: Prof. Felix Lin (University of Virginia)

09/2017 – 07/2021

**BS in Communication Engineering, BUPT**

- Advisor: Prof. Lin Fan

## Honors & Awards

- Travel Grant, MobiSys/EuroSys, 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=dlimkboAAAAJ&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.

## 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