JUNXIAO WANG

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INTRODUCTION

I'm currently a **Post-Doctoral Fellow** at **The Hong Kong Polytechnic University**, working with Prof. Song Guo. My research interests fall into the **machine learning** and **systems** with a special focus on federated learning, trustworthy machine learning and networking.

WORK EXPERIENCE

The Hong Kong Polytechnic University, COMP, *Post-Doctoral Fellow*   2021.03 - Now

    Project: Federated Learning over Mobile Edge Networks, aiming at Machine Learning Governance
    Lab: PolyU Edge Intelligence Lab   Director: Prof. Dr. Song Guo

TECHNICAL SKILLS

I have cutting-edge knowledge and skills related to Machine Learning, e.g., Federated Learning, Gradient Inversion, Machine Unlearning, Backdoors, Prompt Learning, Diffusion Models, etc. Also, I'm professional in Distributed Networking Systems, e.g., Software-Defined Networks, Network Functions Virtualization and Cloud. I'm skillful with many techniques and tools, e.g., Linux, PyTorch, and OpenStack, etc.

EDUCATION

Dalian University of Technology, Computer Technology Application, *PhD*   2016.09 - 2020.12

    Thesis: Research on Techniques of Performance Guarantee for Software Defined Network
    Function Virtualization System   Supervisor: Prof. Dr. Keqiu Li

Queen Mary University of London, EECS, *CSC Funded Joint PhD Student*   2018.10 - 2019.10

    Research: Cloud Data Center Networking Enhancement with Software Defined Networking
    Lab: Networks Research Group   Director: Prof. Dr. Steve Uhlig

Dalian University of Technology, Computer Systems Organization, *MEng*   2014.09 - 2017.07

    Thesis: Research on Request Dispatching for Multi-Controllers in Software Defined Networking
    Supervisor: Prof. Dr. Keqiu Li

Dalian Maritime University, Software Engineering, *BE*   2010.09 - 2014.06

    Thesis: Research on Load Balancing Mechanism Based on Floodlight Controller Platform
    Graduate with Honors: Postgraduate Recommendation

HONORS AND AWARDS

The Hong Kong Polytechnic University Postdoc Matching Fund	2020.12
China Scholarship Council Joint PhD Scholarship	2018.06
Outstanding Postgraduate of Dalian University of Technology	2015.12
Final First Prize and Best Creative Award of National University SDN Competition	2015.08
MCM/ICM Media Contest Outstanding Winner	2013.05

PEER-REVIEWED PUBLICATIONS

Summary: In the past 5 years, I have published a total of 15 peer-reviewed papers, including a total of 4 conference papers and a total of 5 journal papers as the first or corresponding author(*)

Conference Papers

- Rui Zhang, Song Guo, **Junxiao Wang***, Xin Xie, Dacheng Tao. A Survey on Gradient Inversion: Attacks, Defenses and Future Directions. International Joint Conference on Artificial Intelligence (IJCAI) 2022, Survey track.
- **Junxiao Wang**, Song Guo, Xin Xie, Heng Qi. Federated Unlearning via Class-Discriminative Pruning. ACM The Web Conference (WWW) 2022.
- **Junxiao Wang**, Song Guo, Xin Xie, Heng Qi. Protect Privacy from Gradient Leakage Attack in Federated Learning. IEEE International Conference on Computer Communications (INFOCOM) 2022.

- **Junxiao Wang**, Yuchen Huang, Heng Qi, Keqiu Li, Steve Uhlig. CLICK-UP: Towards Software Upgrades of Click-driven Stateful Network Element. ACM SIGCOMM Conference 2018, Demo track.
- Keyan Zhao, **Junxiao Wang**, Heng Qi, Xin Xie, Keqiu Li. HBL-Sketch: A New Three-tier Sketch for Accurate Network Measurement. International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP) 2019.
- Wanqian Zhang, **Junxiao Wang**, Sheng Chen, Heng Qi, Keqiu Li. A Framework for Resource-aware Online Traffic Classification Using CNN. International Conference on Future Internet Technologies (CFI) 2019.
- Wenrui Zhou, Yuan Cao, Heng Qi, **Junxiao Wang**. An Effective Network Intrusion Detection Framework Based on Learning to Hash. IEEE International Conference on Smart Internet of Things (SmartIoT) 2019.

Journal Papers

- Leijie Wu, Song Guo, **Junxiao Wang***, Zicong Hong, Jie Zhang, Yaohong Ding. IEEE Network 2022.
- Xin Xie, Xiulong Liu, **Junxiao Wang**, Song Guo, Heng Qi, Keqiu Li. Efficient Integrity Authentication Scheme for Large-scale RFID Systems. IEEE Transactions on Mobile Computing (TMC) 2022.
- Heng Qi, **Junxiao Wang**, Wenxin Li, Yuxin Wang, Tie Qiu. A Blockchain-driven IIoT Traffic Classification Service for Edge Computing. IEEE Internet of Things Journal (IoTJ) 2021.
- **Junxiao Wang**, Heng Qi, Keqiu Li, Steve Uhlig. Click-UP: Towards the Software Upgrade of Click based Modular Network Function. IEEE Systems Journal (ISJ) 2021.
- **Junxiao Wang**, Heng Qi, Keqiu Li, Xiaobo Zhou. PRSFC-IoT: A Performance and Resource Aware Orchestration System of Service Function Chaining for Internet of Things. IEEE Internet of Things Journal (IoTJ) 2018.
- **Junxiao Wang**, Heng Qi, Yang He, Wenxin Li, Keqiu Li. FlowTracer: An Effective Flow Trajectory Detection Solution Based on Probabilistic Packet Tagging in SDN-Enabled Networks. IEEE Transactions on Network and Service Management (TNSM) 2019.
- **Junxiao Wang**, Heng Qi, Wenxin Li, Keqiu Li, Steve Uhlig, Yuxin Wang. Dynamic SDN Control Plane Request Assignment in NFV Datacenters. IEEE Transactions on Network Science and Engineering (TNSE) 2021.
- Xinping Xu, Wenxin Li, Heng Qi, **Junxiao Wang**, Keqiu Li. Latency-Constrained Cost-Minimized Request Allocation for Geo-distributed Cloud Services. IEEE Open Journal of the Communications Society (OJCOMS) 2020.

Service Experience

Academic Services

Engaged in Peer-Review of INFOCOM, CVPR, JSAC, TNET, CSUR, IoTJ, etc.
Session Chair of IEEE International Conference on Parallel and Distributed Systems (ICPADS) 2019

Student Teaching

Shepherd of PhD Thesis in Hong Kong Polytechnic University and Queen Mary University of London
Shepherd of National Science Competitions, Postgraduate Thesis in Dalian University of Technology

Talks

Invited Talks

Title: Privacy Protection in Federated Learning
Ritsumeikan University & CCF Dalian International Seminar | Online   2022.03

Conference Talks

Title: Protect Privacy from Gradient Leakage Attack in Federated Learning
IEEE International Conference on Computer Communications (INFOCOM) | Online   2022.05

Title: Federated Unlearning via Class-Discriminative Pruning
ACM The Web Conference (WWW) | Online   2022.04

Title: CLICK-UP: Towards Software Upgrades of Click-driven Stateful Network Elements
ACM SIGCOMM Conference, Demo Track | Budapest, Hungary   2018.08

Competition Talks

Referees

Prof. Dr. Song Guo, COMP, PolyU, song.guo@polyu.edu.hk
Prof. Dr. Steve Uhlig, EECS, QMUL, steve.uhlig@qmul.ac.uk
Prof. Dr. Keqiu Li, CIC, TJU, keqiu@tju.edu.cn
Prof. Dr. Heng Qi, CS, DUT, hengqi@dlut.edu.cn