

JUNXIAO WANG

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INTRODUCTION

I'm currently a **Postdoctoral Fellow** at the **Department of Computing** at **The Hong Kong Polytechnic University**, working with Prof. Dr. Song Guo (CAE Fellow, IEEE Fellow and Director of PolyU Edge Intelligence Laboratory). My research interests fall into Privacy-Preserving Machine Learning, Federated Learning, Cloud and Programmable Networking.

WORK EXPERIENCE

The Hong Kong Polytechnic University, COMP, Postdoctoral Fellow 2021.03 - Now

Research: Federated Learning over Mobile Edge Networks, aiming at Machine Learning Governance

Lab: PolyU Edge Intelligence Lab Director: Prof. Dr. Song Guo, CAE Fellow, IEEE Fellow

TECHNICAL SKILLS

I have many cutting-edge skills related to (Privacy-Preserving) Machine Learning, e.g., Federated Learning, Gradient Inversion, Machine Unlearning, Backdoor, Transformers, and Self-Supervised Pre-Training, etc. Also, I'm professional in Cloud-Native Networking, e.g., Software-Defined Networks and Network Functions Virtualization. I'm familiar with many 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, IEEE Fellow

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, Head of EECS

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, IEEE Fellow

Dalian Maritime University, Software Engineering (Japanese Emphasized), BE 2010.09 - 2014.06

Thesis: Research on Load Balancing Mechanism Based on Floodlight Controller Platform

Recommended Exemption Enrolling into Postgraduate of Dalian University of Technology

HONORS AND AWARDS

The Hong Kong Polytechnic University Postdoc Matching Fund 2020.12

Joint PhD Scholarship from the China Scholarship Council 2018.06

Outstanding Postgraduate of Dalian University of Technology 2015.12

Final First Prize and Best Creative Award in 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 16 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. (JCR-Q1, Impact Factor 10.294)
- 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. (JCR-Q1, Impact Factor 6.075)
- 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. (JCR-Q1, Impact Factor 10.238)
- **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. (JCR-Q1, Impact Factor 4.802)
- **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. (JCR-Q1, Impact Factor 10.238)
- **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. (JCR-Q1, Impact Factor 4.758)
- **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. (JCR-Q1, Impact Factor 5.033)
- 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 (OJ-COMS) 2020.

SERVICE EXPERIENCE

Academic Services

Engaged in Peer-Review of INFOCOM, CVPR, JSAC, TNET, CSUR, IoTJ, TNSM
 Program Committee of IEEE ICPADS 2020 Workshop on Network Computing and Data Management
 Session Chair of IEEE International Conference on Parallel and Distributed Systems (ICPADS) 2019

Student Teaching

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

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	
Title: Centrally Coordinated Replica Selection Architecture in Multi-Controller SDN The 2nd National University SDN Competition Final SCUT, Guangzhou	2015.08

REFEREES

Prof. Dr. Song Guo, COMP, PolyU, CAE Fellow, IEEE Fellow, song.guo@polyu.edu.hk

Prof. Dr. Steve Uhlig, EECS, QMUL, Head of EECS, steve.uhlig@qmul.ac.uk

Prof. Dr. Keqiu Li, CIC, TJU, Head of CIC, IEEE Fellow, keqiu@tju.edu.cn

Prof. Dr. Heng Qi, CS, DUT, hengqi@dlut.edu.cn