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 Federated Learning, Machine Learning Governance and Privacy Protection, Software Defined Networking, and Network Function Virtualization

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

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 14 peer-reviewed papers, including a total of 4 conference papers as a first or corresponding author (including 3 CCF-A conference long papers and 1 CCF-A conference short paper), and a total of 5 journal papers as a first or corresponding author (including 1 中科院 1 区, 3 JCR-Q1, 1 CCF 中文 A 类)

Conference Papers

- **Junxiao Wang**, Song Guo, Xin Xie, Heng Qi. Federated Unlearning via Class-Discriminative Pruning. ACM The Web Conference (WWW) 2022. (CCF-A)
- 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. (CCF-A, corresponding author)
- **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. (CCF-A)
- **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. (CCF-A, short)

- 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. (CCF-C)
- 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

- **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. (中科院 1 区, JCR-Q1, Impact Factor 9.471)
- **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, CCF-C, Impact Factor 4.195)
- **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 3.894)
- **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 3.931)
- 王军晓, 齐恒, 李克秋, 周晓波. 面向数据中心网络的链路故障实时检测即服务. 计算机研究与发展 2018. (CCF 中文 A 类)
- 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. (中科院 1 区, JCR-Q1, Impact Factor 9.471)
- 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.

GRANTED PATENTS

Summary: In the past 5 years, a total of 10 invention patents have been granted
李克秋, **王军晓**, 齐恒, 喻海生. 一种 SDN 体系架构中协调层的构建方法, CN201710030607.8
李克秋, 雷创, 齐恒, **王军晓**. 一种基于虚拟化技术的虚拟数据中心资源提供方法, CN201710230445.2
李克秋, 李书煜, 齐恒, **王军晓**. 一种基于 Cairngorm 框架的虚拟数据中心可视化管理方法, CN201710225860.9
李克秋, 张志千, 齐恒, **王军晓**. 一种基于 OpenFlow 协议的 SDN 控制器应用性能分析方法, CN201810375977.X
齐恒, 乔佳彬, 李克秋, **王军晓**. 一种面向混部云的服务性能测试方法, CN201810375893.6
李克秋, 赵佶, 齐恒, **王军晓**. 一种提供边缘计算服务的网关设备建立方法, CN201810419285.0
李克秋, 黄宇晨, 齐恒, **王军晓**. 一种基于 Click 的虚拟网元在线编排方法, CN201810255339.4
齐恒, 周文蘂, 曹媛, 李克秋, **王军晓**. 一种基于自动编码器网络的异常流量检测方法, CN201910094284.8
齐恒, 赵柯妍, 李克秋, **王军晓**. 一种基于三层 Sketch 架构的大象流检测方法, CN201910067412.X
张婉茜, 齐恒, 李克秋, **王军晓**. 一种具有计算资源自适应性的异常流量检测方法, CN201910067413.4

ENGAGED RESEARCH PROJECTS

NSFC 面上, 学习驱动及知识定义的网络流量分类关键技术的研究	2021.01 - 2024.12
NSFC 面上, 面向可视媒体大数据处理的计算网络协同调度关键技术的研究	2018.01 - 2021.12
NSFC 重点, 软件定义网络的基础理论及关键技术	2015.01 - 2019.12

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

Titile: 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