

Zhe PENG

PERSONAL INFORMATION

Research Assistant Professor
Department of Computer Science
Hong Kong Baptist University

Telephone: (852) 3411 7599
Email: pengzhe@comp.hkbu.edu.hk

RESEARCH INTERESTS

Blockchain, Mobile Computing, Data Security and Privacy, Internet of Things (IoT)

EDUCATION

The Hong Kong Polytechnic University , Hong Kong <i>Ph.D. in Computer Science</i> Supervisor: Prof. Bin Xiao	Jul. 2014 - Sep. 2018
University of Science and Technology of China , Hefei, China <i>M.E. in Information and Communication Engineering</i>	Sep. 2010 - Jul. 2013
Northwestern Polytechnical University , Xi'an, China <i>B.E. in Communication Engineering</i>	Sep. 2006 - Jul. 2010

PREVIOUS WORK EXPERIENCE

Hong Kong Baptist University , Hong Kong <i>Research Assistant Professor in Department of Computer Science</i>	Jan. 2020 - Present
SF Technology , Shenzhen, China <i>Blockchain Technical Director</i>	Oct. 2018 - Dec. 2019
State University of New York at Stony Brook , NY, United States <i>Visiting Student in Department of Electrical and Computer Engineering</i> Supervisor: Prof. Yuanyuan Yang	Aug. 2017 - Oct. 2017
The Hong Kong Polytechnic University , Hong Kong <i>Research Assistant in Department of Computing</i>	Mar. 2014 - Jun. 2014
TP-LINK , Shenzhen, China <i>Software Engineer</i>	Jul. 2013 - Mar. 2014

RESEARCH GRANTS

1. **PI**, Blockchain-Based Verifiable Federated Learning in Edge Computing, Guangdong Basic and Applied Basic Research Foundation 2020A1515111070, 2020-2023.

PUBLICATIONS

Journal Papers

1. [TPDS'21] Haotian Wu, **Zhe Peng**, Songtao Guo, Yuanyuan Yang, and Bin Xiao, "VQL: Efficient and Verifiable Cloud Query Services for Blockchain Systems", *IEEE Transactions on Parallel and Distributed Systems*, Vol. 33, No. 6, pp. 1393-1406, 2021. (Impact Factor: 2.687, JCR Q2)

2. [TNSE'21] **Zhe Peng**, Jianliang Xu, Xiaowen Chu, Shang Gao, Yuan Yao, Rong Gu, and Yuzhe Tang, "VFChain: Enabling Verifiable and Auditable Federated Learning via Blockchain Systems", *IEEE Transactions on Network Science and Engineering*, 2021. (Impact Factor: 5.213, JCR Q1)
3. [TNSE'21] Zecheng Li, Shang Gao, **Zhe Peng**, Bin Xiao, Songtao Guo, and Yuanyuan Yang, "B-DNS: A Secure and Efficient DNS Based on the Blockchain Technology", *IEEE Transactions on Network Science and Engineering*, Vol. 8, No. 2, pp. 1674-1686, 2021. (Impact Factor: 5.213, JCR Q1)
4. [WC'20] Yuan Yao, Bin Xiao, Wen Wang, Gang Yang, Xingshe Zhou, and **Zhe Peng**, "Real-Time Cache-Aided Route Planning based on Mobile Edge Computing", *IEEE Wireless Communications*, Vol. 27, No. 5, pp. 155-161, 2020. (Impact Factor: 11.391, JCR Q1)
5. [TON'20] Shang Gao, **Zhe Peng**, Bin Xiao, Aiqun Hu, Yubo Song, and Kui Ren, "Detection and Mitigation of DoS Attacks in Software Defined Networks", *IEEE/ACM Transactions on Networking*, Vol. 28, No. 3, pp. 1419-1433, 2020. (Impact Factor: 3.597, JCR Q1)
6. [TMC'19] **Zhe Peng**, Yuan Yao, Bin Xiao, Songtao Guo, and Yuanyuan Yang, "When Urban Safety Index Inference Meets Location-based Data", *IEEE Transactions on Mobile Computing*, Vol. 18, No. 11, pp. 2701-2713, 2019. (Impact Factor: 4.098, JCR Q1)
7. [NETWORK'18] **Zhe Peng**, Shang Gao, Zecheng Li, Bin Xiao, and Yi Qian, "Vehicle Safety Improvement through Deep Learning and Mobile Sensing", *IEEE Network*, Vol. 32, No. 4, pp. 28-33, 2018. (Impact Factor: 7.197, JCR Q1)
8. [TASE'18] **Zhe Peng**, Shang Gao, Bin Xiao, Songtao Guo, and Yuanyuan Yang, "CrowdGIS: Updating Digital Maps via Mobile Crowdsensing", *IEEE Transactions on Automation Science and Engineering*, Vol. 15, No. 1, pp. 369-380, 2018. (Impact Factor: 5.224, JCR Q1)
9. [IoTJ'18] **Zhe Peng**, Shang Gao, Bin Xiao, Guiyi Wei, Songtao Guo, and Yuanyuan Yang, "Indoor Floor Plan Construction through Sensing Data Collected from Smartphones", *IEEE Internet of Things Journal*, Vol. 5, No. 6, pp. 4351-4364, 2018. (Impact Factor: 5.863, JCR Q1)
10. [TVT'18] Yuan Yao, **Zhe Peng**, and Bin Xiao, "Parallel Hyper-Heuristic Algorithm for Multi-objective Route Planning in a Smart City", *IEEE Transactions on Vehicular Technology*, Vol. 67, No. 11, pp. 10307-10318, 2018. (Impact Factor: 4.432, JCR Q1)
11. [CC'17] Jiwei Li, **Zhe Peng**, Shang Gao, Bin Xiao, and Henry Chan, "Smartphone-Assisted Energy Efficient Data Communication for Wearable Devices", *Computer Communications*, Vol. 105, pp. 33-43, 2017. (Impact Factor: 2.613, JCR Q2)
12. [JUCAS'13] **Zhe Peng**, Hancheng Lu, and Peilin Hong, "On Optimal Power Allocation Scheme for Delay-Constrained Communication", *Journal of University of Chinese Academy of Sciences*, 2013.

Conference Papers

1. [SIGMOD'21] **Zhe Peng**, Cheng Xu, Haixin Wang, Jinbin Huang, Jianliang Xu, and Xiaowen Chu, "P²B-Trace: Privacy-Preserving Blockchain-based Contact Tracing to Combat Pandemics", in *Proc. of the ACM International Conference on Management of Data*, Xi'an, Shaanxi, China, 2021.
2. [DASFAA'21] **Zhe Peng**, Jinbin Huang, Haixin Wang, Shihao Wang, Xiaowen Chu, Xinzhi Zhang, Li Chen, Xin Huang, Xiaoyi Fu, Yike Guo, and Jianliang Xu, "BU-Trace: A Permissionless Mobile System for Privacy-Preserving Intelligent Contact Tracing", in *Proc. of International Conference*

- on Database Systems for Advanced Applications Workshops*, Taipei, Taiwan, 2021. (*Best Paper Award*)
3. [ICDE'19] **Zhe Peng**, Haotian Wu, Bin Xiao, and Songtao Guo, "VQL: Providing Query Efficiency and Data Authenticity in Blockchain Systems", in *Proc. of the IEEE International Conference on Data Engineering Workshops*, Macau SAR, China, 2019.
 4. [CCS'19] Shang Gao, Zecheng Li, **Zhe Peng**, and Bin Xiao, "Power Adjusting and Bribery Racing: Novel Mining Attacks in the Bitcoin System", in *Proc. of the ACM Conference on Computer and Communications Security*, London, UK, 2019.
 5. [ICC'18] Jiwei Li, **Zhe Peng**, and Bin Xiao, "New Mobility-aware Application Offloading Design with Low Delay and Energy Efficiency", in *Proc. of the IEEE International Conference on Communications*, Kansas City, MO, USA, 2018.
 6. [ICC'17] **Zhe Peng**, Bin Xiao, Yuan Yao, Jichang Guan, and Fan Yang, "U-Safety: Urban Safety Analysis in a Smart City", in *Proc. of the IEEE International Conference on Communications*, Paris, France, 2017.
 7. [INFOCOM'17] Shang Gao, **Zhe Peng**, Bin Xiao, Aiqun Hu, and Kui Ren, "FloodDefender: Protecting Data and Control Plane Resources under SDN-aimed DoS Attacks", in *Proc. of the IEEE International Conference on Computer Communications*, Atlanta, GA, USA, 2017.
 8. [IWQoS'17] Shang Gao, **Zhe Peng**, Bin Xiao, Qingjun Xiao, and Yubo Song, "SCoP: Smartphone Energy Saving by Merging Push Services in Fog Computing", in *Proc. of IEEE/ACM International Symposium on Quality of Service*, Barcelona, Spain, 2017.
 9. [ICC'17] Yuan Yao, **Zhe Peng**, Bin Xiao, and Jichang Guan, "An Efficient Learning-based Approach to Multi-objective Route Planning in a Smart City", in *Proc. of the IEEE International Conference on Communications*, Paris, France, 2017.
 10. [ICC'16] Shang Gao, **Zhe Peng**, Bin Xiao, and Yubo Song, "Secure and Energy Efficient Prefetching Design for Smartphones", in *Proc. of the IEEE International Conference on Communications*, Kuala Lumpur, Malaysia, 2016.
 11. [IWQoS'16] Jiwei Li, **Zhe Peng**, and Bin Xiao, "Smartphone-Assisted Smooth Live Video Broadcast on Wearable Cameras", in *Proc. of the IEEE/ACM International Symposium on Quality of Service*, Beijing, China, 2016.
 12. [SECON'15] Jiwei Li, **Zhe Peng**, Bin Xiao, and Yu Hua, "Make Smartphones Last A Day: Pre-processing Based Computer Vision Application Offloading", in *Proc. of the IEEE International Conference on Sensing, Communication and Networking*, Seattle, WA, USA, 2015.

Patents

1. **Zhe Peng**, and Bin Xiao, "Method and Apparatus for Indoor Localization Based on Virtual Landmarks", CN105635956A, 2016.
2. **Zhe Peng**, and Bin Xiao, "Method and Apparatus for Real-time Queuing Time Estimation in Customs Clearance", CN105632003A, 2016.
3. **Zhe Peng**, Xiaolong Yao, et al, "Method and Apparatus for Data Storage and Authentication", CN110287724A, 2019.

PROFESSIONAL ACTIVITIES

Invited Talks

- “Innovation - Answer to Emerging Opportunities?”, Asian Logistics and Maritime Conference (ALMC), HKTDC & HKSAR, Nov. 2019
- “Data Engineering in Mobile Sensing and Blockchain”, HKBU, Sep. 2019
- “Blockchain Applications for Smart Supply Chain”, IEEE MDM Workshop on Blockchain and Mobile Applications (BlockApp), Jun. 2019
- “Blockchain Applications in Smart Supply Chain”, GS1 Hong Kong IoT Conference, Jun. 2019

TPC Members

- IEEE ICDE Workshop on Blockchain and Data Management (BlockDM), 2021
- IEEE ICNP Workshop on Blockchain and Mobile Applications (BlockApp), 2021
- IEEE ICDCS Workshop on Blockchain and Mobile Applications (BlockApp), 2020
- BenchCouncil International Symposium on Block Chain (BChain), 2020

Technical Reviewers

- IEEE Transactions on Mobile Computing
- IEEE Transactions on Industrial Informatics
- IEEE Transactions on Intelligent Transportation Systems
- IEEE Transactions on Network and Service Management
- IEEE Transactions on Green Communications and Networking
- IEEE Internet of Things Journal
- IEEE Network
- IEEE Access
- Elsevier Computer Networks
- Elsevier Computer Communications
- Elsevier Pervasive and Mobile Computing
- Springer Mobile Networks and Applications
- BMC Genomics
- IEEE International Conference on Computer Communications
- IEEE International Conference on Distributed Computing Systems
- IEEE International Conference on Parallel and Distributed Systems
- IEEE International Conference on Sensing, Communication and Networking
- IEEE International Conference on High Performance Computing and Communications
- IEEE International Conference on Communications
- IEEE Global Communications Conference
- IEEE International Conference on Mobile Ad-Hoc and Smart Systems
- IEEE International Conference on Trust, Security and Privacy in Computing and Communications

TEACHING EXPERIENCES

COMP2865 Fundamental of Data Analysis and Management, HKBU Fall 2021

- *Course Leader*

COMP4087 Selected Topics in Web Technology and Data Engineering, HKBU Spring 2021

- *Course Leader*

COMP7200 Blockchain Technology, HKBU Spring 2020, 2021

- *Course Leader*

COMP5527 Mobile Computing and Data Management, PolyU Spring 2017

- *Teaching Assistant*

COMP2322 Computer Networking, PolyU Spring 2016

- *Teaching Assistant*

COMP2012 Discrete Mathematics, PolyU

Spring 2015

- *Teaching Assistant*

COMP437 Mobile Computing, PolyU

Spring 2014, Fall 2016

- *Teaching Assistant*

SELECTED AWARDS

- Best Paper Award at International Workshop on Mobile Ubiquitous Systems and Technologies, Springer 2021
- Overseas High-Caliber Personnel Award (Peacock Talent Plan), Shenzhen 2019
- First Prize in COMP Research Competition, PolyU 2017
- Postgraduate Scholarship, PolyU 2014 - 2017
- First-Class Postgraduate Scholarship, USTC 2010 - 2012
- Excellent Graduation Thesis, NPU 2010
- First Prize in China Undergraduate Mathematical Contest in Modeling 2008
- Excellent Student Award, NPU 2007 - 2009