



# Tong Li

**Name:** Dr. Tong Li  
**Address:** Section D, Huawei Industrial Base,  
Bantian, Longgang District, Shenzhen, China  
**Postal Code:** 518129

**Sex:** Male  
**Mobile:** --  
**E-mail:** [litong12@tsinghua.org.cn](mailto:litong12@tsinghua.org.cn)  
**Webpage:** <http://leetong.weebly.com>

## EDUCATION

- Aug. 2012 – Jul. 2017      Doctorate, Department of Computer Science and Technology, Tsinghua University, Beijing, China  
    ✧ Average score: 93 out of 100 (Top 3 students)
- Feb. 2016 – Aug. 2016      Joint doctoral promotion program, School of Computer Science and Electronic Engineering, University of Essex, Colchester, UK
- Aug. 2008 – Jun. 2012      Bachelor, Department of Computer Science and Technology, Wuhan University, Wuhan, China  
    ✧ Average score: 90 out of 100 (Ranking first)

## RESEARCH INTERESTS

Network Protocols, Cloud/Edge Computing, Video Streaming.

## PROFESSIONAL ACTIVITIES

- Jul. 2017 – to date      **Senior researcher in the Computer Network and Protocol Lab, 2012 Laboratories, Huawei**
- ✧ Measurement study on multi-path TCP with multiple cellular carriers on high-speed rails. Part of my work was done when I was a PhD student in Tsinghua University. This work is published on the ACM SIGCOMM 2018.
  - ✧ Standardization of a novel acknowledgement mechanism, known as TACK (Tame ACKnowledgement), which is aimed to be the standard of acknowledgement in 802.11-based wireless scenarios (e.g., WLAN). We are active in IETF groups such as tcpm and QUIC.
  - ✧ I designed TCP-TACK (UDP-based implementation is called FillP). TCP-TACK is a newly proposed transport protocol, revisiting division of labor between sender and receiver of TCP. TCP-TACK is now applied in dozens of Huawei products including smartphones, projection devices, CDNs, storage systems, applications, and internal tools. This work is published on the ACM SIGCOMM 2020.
  - ✧ Team Leader of Nearby Service, which is one of 24 kits in the Huawei Mobile Service (HMS).
  - ✧ I led the team to design, implement, and release the Huawei Contact Shield. HMS Core Contact Shield is a basic contact tracing service developed based on the Bluetooth low energy (BLE) technology. Government organizations can authorize developers to develop COVID-19 contact tracing apps using Contact Shield APIs. These apps can interact with other devices while protecting user privacy to check whether a user has been in contact with a person tested positive for COVID-19. If so, the user will be notified and instructed to take relevant measures, effectively controlling the spread of the virus.

## ENGLISH SKILL

- ✧ Skilled English, can be used as a living and working language

- ◇ 10-month oversea study and work experience (United Kingdom)
- ◇ Certificate of the CET-4, CET-6, and Tsinghua English Proficiency Test II

## **PUBLICATIONS**

### **1. Top 5 Representative Works**

- [1] **Tong Li**, Kai Zheng, Ke Xu, Rahul Arvind Jadhav, Tao Xiong, Keith Winstein, and Kun Tan. "TACK: Improving Wireless Transport Performance by Taming Acknowledgments." Proceedings of the 2020 Conference of the ACM Special Interest Group on Data Communication (ACM SIGCOMM), pp. 1-16, 2020. (CCF A)
- [2] Li Li, Ke Xu, **Tong Li**, Kai Zheng, Chunyi Peng, Dan Wang, Xiangxiang Wang, Meng Shen, Rashid Mijumbi. "A Measurement Study on Multi-path TCP with Multiple Cellular Carriers on High-speed Rails." Proceedings of the 2018 Conference of the ACM Special Interest Group on Data Communication (ACM SIGCOMM), pp. 161-175, 2018. (Core contributor, CCF A)
- [3] Ke Xu, Liang Lv, **Tong Li\***, Meng Shen, Haiyang Wang, Kun Yang. "Minimizing Tardiness for Data-intensive Applications in Heterogeneous Systems: A Matching Theory Perspective." IEEE Transactions on Parallel and Distributed Systems (TPDS), vol.31, no.1, pp. 144-158, 2019. (Corresponding author, SCI, CCF A)
- [4] Haiyang Wang, **Tong Li\***, Ryan Shea, Xiaoqiang Ma, Feng Wang, Jiangchuan Liu, Ke Xu. "Towards Cloud-Based Distributed Interactive Applications: Measurement, Modeling, and Analysis." ACM/IEEE Transactions on Networking (TON), vol.26, no.1, pp. 3-16, 2017. (Corresponding author, Impact Factor=3.376, SCI, CCF A)
- [5] **Tong Li**, Chathura Sarathchandra Magurawalage, Kezhi Wang, Ke Xu, Kun Yang, Haiyang Wang. "On efficient offloading control in cloud radio access network with mobile edge computing". IEEE International Conference on Distributed Computing Systems (ICDCS), pp. 2258-2263, 2017. (EI, CCF B)

### **2. Other Journals and Conferences**

- [14] Xinle Du, Ke Xu, **Tong Li**, Kai Zheng, Meng Shen, Xiaojiang Du, Lei Xu, Bo Wu, Haibin Li and Guangmeng Zhou. "R-AQM: Rereverse ACK Active Queue Management in Datacenters." (Under Review)
- [13] Lei Xu, Ke Xu, **Tong Li**, Kai Zheng, Meng Shen, Xiaojiang Du and Xinle Du. "ABQ: Active Buffer Queueing in Datacenters." IEEE Network Magazine, pp. 1-6, 2020.
- [12] Ke Xu, **Tong Li\***, Haiyang Wang, Haitao Li, Wei Zhu, Jiangchuan Liu and Song Lin. "Modeling, Analysis, and Implementation of Universal Acceleration Platform Across Online Video Sharing Sites." IEEE Transactions on Services Computing (TSC), vol.11, no.3, pp. 534-548, 2018. (Corresponding author, Impact Factor=3.520, SCI, CCF B)
- [11] **Tong Li**, Kezhi Wang, Ke Xu, Kun Yang, Chathura Sarathchandra Magurawalage, Haiyang Wang. "Communication and Computation Cooperation in Cloud Radio Access Network with Mobile Edge Computing." CCF Transactions on Networking (CTON), pp. 1-14, 2018. (The first journal of CCF)
- [10] Zhicheng Ge, Ke Xu, Liang Chen, **Tong Li**, Long Yao, and Meng Shen. "A Hierarchical Cooperative Caching Strategy for Mobile Content Delivery Network." Chinese Journal of Computers (in Chinese), vol.41, no.12, pp. 2769-2786, 2018. (EI)
- [9] Yuchao Zhang, Ke Xu, Haiyang Wang, Qi Li, **Tong Li**, and Xuan Cao. "Going Fast and Fair: Latency Optimization for Cloud-Based Service Chains". IEEE Network Magazine, pp. 138-143, 2017. (Impact Factor=7.23, SCI)
- [8] Jiangtao Ma, Yaqiong Qiao, Guangwu Hu, **Tong Li**, Yongzhong Huang, Yanjun Wang, Chaoqin Zhang. "Social Account Linking via Weighted Bipartite Graph Matching". International Journal of Communication Systems (IJCS), vol.31, no.7, pp. 1-17, 2017. (SCI)
- [7] **Tong Li**, Ke Xu, Meng Shen, Haiyang Wang, Kun Yang, and Yuchao Zhang. "Towards Minimal Tardiness of Data-intensive Applications in Heterogeneous Networks." IEEE International Conference on Computer

Communication and Networks (ICCCN), pp. 1-9, 2016. (EI, CCF C)

[6] Hui Su, Ke Xu, Meng Shen, Yong Wang, Yifeng Zhong, **Tong Li**. "Research on Mobile Data Subsidy Model and Case Study." Journal of Computer Research and Development (in Chinese), vol. 53, no. 4, pp. 861-872, 2016. (EI)

[5] Ke Xu, Meng Shen, Hongying Liu, Jiangchuan Liu, Fan Li and **Tong Li**, "Achieving Optimal Traffic Engineering Using a Generalized Routing Framework." IEEE Transactions on Parallel and Distributed Systems (TPDS), vol. 27, no. 1, pp. 51-65, 2014. (SCI, CCF A)

[4] Ke Xu, Min Zhu, Ning Wang, Song Lin, Haiyang Wang and **Tong Li**, "The 2ACT Model-based Evaluation for In-network Caching Mechanism." IEEE Symposium on Computers and Communications (ISCC), pp. 636-641, 2013. (EI, CCF C)

[3] Jing Chen, **Tong Li**, Ruiying Du, Jianming Fu, Jianwei Liu. "Efficient reliable opportunistic network coding based on hybrid flow in wireless network." China Communications, vol. 8, no. 4, pp. 125-131, 2011. (SCI)

[2] Fajiang Yu, **Tong Li**, Lin Yang, and Zhang Huanguo. "Hierarchical-CPK-based trusted computing cryptography scheme." Proceedings of the 8th international conference on Autonomic and Trusted Computing, pp. 149-163. Springer Berlin Heidelberg, 2011.

[1] **Tong Li**, Fajiang Yu, Yang Lin Y, Xueyuan Kong, Yue Yu. "Trusted computing dynamic attestation using a static analysis based behaviour model." Journal of Convergence, vol. 2, no. 1, pp. 61-68, 2011.

### 3. Patents

[10] **Tong Li**, Kai Zheng, Shengjun Chen, Junsen Chen, Jiao Kang. "An Acknowledgement Scheme and Protocol Implementation Method." Chinese Patent, 201911033773.9, 2019.10. (Substantial Examination)

[9] Ke Xu, Xinle Du, **Tong Li**, Kai Zheng, Bo Wu. "Congestion control method and device based on switch active queue management." Chinese Patent, 201910625794.3, 2019.8. (Substantial Examination)

[8] **Tong Li**, Kai Zheng, Shengjun Chen, Junsen Chen, Fanzhao Wang. "A round-trip timing system, method and device." Chinese Patent, 201910631286.6, 2019.7. (Substantial Examination)

[7] **Tong Li**, Kai Zheng, Dang Su, Xinping Chen. "Data transmission method and device." Chinese Patent, 201910229219.1, 2019.3. (Substantial Examination)

[6] Jiao Kang, Fanzhao Wang, Hao Wang, **Tong Li**, Libo Yu, Kai Zheng. "A method of dynamic path selection." Chinese Patent, 201811595825.7, 2018.12. (Substantial Examination)

[5] Ke Xu, Songtao Fu, **Tong Li**, Kai Zheng. "Transport control methods and systems via reverse active queue management." Chinese Patent, 201811599153.7, 2018.12. (Substantial Examination)

[4] **Tong Li**, Ke Xu, Jing Zuo, Fanzhao Wang, Kai Zheng. "Link detection method and related devices." Chinese Patent, 201810565684.8, 2018.05. (Substantial Examination)

[3] Ke Xu, **Tong Li**, Xin Liu, Meng Shen. "Method on resource allocation with intermediate processing constraints in the heterogeneous network." US Patent, US 20180316625A, 2016.11.07. (Substantial Examination)

[2] Ke Xu, **Tong Li**, Xin Liu, Meng Shen. "Method on resource allocation with intermediate processing constraints in the heterogeneous network." Chinese Patent, CN201510822590.0, 2015.11.24. (Patented Case)

[1] Ke Xu, **Tong Li**, Meng Shen. "Method on flow configuration for the domain router." Chinese Patent, CN201310279174.1, 2016.03.02. (Patented Case)

### 5. Draft Standard

[3] **Tong Li**, Kai Zheng, Rahul Arvind Jadhav, Jiao Kang. "Optimizing ACK Mechanism for QUIC." IETF Draft, Huawei, 2020.04.

[2] **Tong Li**, Kai Zheng, Rahul Arvind Jadhav, Jiao Kang. "Advancing ACK Handling for Wireless Transports."

IETF Draft, Huawei, 2019.03.06.

[1] Jianjian Zhu, Jiao Kang, Fanzhao Wang, **Tong Li**, Kai Zheng. "Initial-Path Selection for Connection Establishment in Multipath TCP." IETF Draft, Huawei, 2019.02.22.

## 5. Thesis

[1] Tong Li. "Mean-field Theory for Computer System and Communication Networks." Bachelor thesis (in Chinese), Wuhan University, Department of Computer Science and Technology, July 2012. Advisor Prof. Dr. Jing Chen and Prof. Dr. Ke Xu

[2] Tong Li. "Latency Optimization on Computation Offloading of Mobile Terminals." Doctoral thesis (in Chinese), Tsinghua University, Department of Computer Science and Technology, July 2017. Advisor Prof. Dr. Ke Xu

Note: More publications please refer to <https://leetong.weebly.com/publications.html>