Yanbing Liu

443 Huangshan Road, Hefei, Anhui 230027, P.R.China

viper@mail.ustc.edu.cn +86 18856002832 yanbingliu1997.github.io

Research Interest: Computer Networks, Multipath Transmission, Network Protocol Design

Education

University of Science and Technology of China (USTC), Hefei, P.R.China *Sep. 2017 - Present*
M.S. in Department of Electronic Engineering and Information Science
GPA: 3.80/4.3 Advisor: *Prof. Guo Wei*
National Scholarship (Top 1%), 2018

University of Science and Technology of China (USTC), Hefei, P.R.China *Sep. 2013 - Jun. 2017*
B.E. in Department of Electronic Engineering and Information Science
GPA: 3.65/4.3
USTC Outstanding Student Scholarship (Silver Award), 2014 - 2016

IELTS: 7.5 GRE: V: 157, Q: 170, AW: 3.5

Publications

Accepted:

- **Yanbing Liu**, Xiaowei Qin, Ting Zhu, Xiaohui Chen, and Guo Wei, "Improve MPTCP with SDN: From the perspective of resource pooling," *Journal of Network and Computer Applications*, vol. 141, pp. 73-85, Sep 2019.
- **Yanbing Liu**, Xiaowei Qin, Tianyi Zhang, Ting Zhu, Xiaohui Chen, and Guo Wei, "Decoupled TCP Extension for VLC Hybrid Network," *IEEE/OSA Journal of Optical Communications and Networking*, vol. 10, no. 5, pp. 563-572, May 2018.
- **Yanbing Liu**, Xiaowei Qin, Ting Zhu, Xiaohui Chen, and Guo Wei, "BESS: BDP Estimation Based Slow Start Algorithm for MPTCP in mmWave-LTE Networks," *2018 IEEE 88th Vehicular Technology Conference (VTC Fall)*, 2018.

Submitted:

- **Yanbing Liu**, Xiaowei Qin, Xiaohui Chen, and Guo Wei, "G-MPTCP: Improve Multipath TCP in Heterogeneous Networks with Graph Neural Network," Submitted to *IEEE Conference on Computer Communications (INFOCOM)*, 2020.

Research Experience

Graph Neural Network (GNN) based MPTCP Scheduler Design *May 2019 - Jul. 2019*
- Based on GNN, designed novel subflow management module and scheduler for MPTCP to improve its performance in heterogeneous networks
- Led team members to implement, train and evaluate our GNN models with Tensorflow
- Implemented improved modules in MPTCP Linux kernel
- Established testbed and evaluated performance with Mininet and Floodlight controller

Improve MPTCP with Software Defined Network (SDN) *May 2018 - Jul. 2018*
- Leveraging global information collected by SDN, designed novel routing and congestion control schemes for MPTCP to achieve fast, efficient and fair resource exploration and allocation
- Modified MPTCP Linux kernel and Floodlight controller to implement functions in the design
- Established testbed and evaluated performance with Mininet and Floodlight controller

Optimize MPTCP's Slow Start in Millimeter Wave (mmWave) Networks *Jan. 2018 - Apr. 2018*
- Simulated mmWave networks and then tested MPTCP's performance with NS-3-DCE
- Proposed a BDP estimation based slow start algorithm to address MPTCP's performance degradation in mmWave networks
- Evaluated performance through simulation with NS-3-DCE

Decouple TCP for Visible Light Communication (VLC) networks *Jul. 2017 - Dec. 2017*
- Extended TCP and MPTCP to decouple uplink and downlink and enable TCP transmission in VLC networks
- Modified TCP and MPTCP Linux kernel to realize functions
- Evaluated performance in a real VLC hybrid network

Computer Skills

Programming: C, C++, Python, Java, Matlab, LaTeX
Kernel & Software: Linux Kernel, NS-3, NS-3-DCE, Mininet, Floodlight, Tensorflow