

Yanbing Liu

✉ liu3098@purdue.edu

☎ +1 7657756490

🌐 yanbingliu1997.github.io

Research Interest

My current research interests are in the area of mobile networking, with a focus on 5G/6G networks measurement and design.

Education

Purdue University, West Lafayette, USA Aug. 2021 - Present

Ph.D in Department of Computer Science

Advisor: Prof. Chunyi Peng

University of Science and Technology of China (USTC), Hefei, P.R.China Sep. 2017 - Jun. 2020

M.E. in Department of Electronic Engineering and Information Science

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

Professional Experience

Purdue University, West Lafayette, USA Aug. 2024 - Present

Teaching Assistant

Purdue University, West Lafayette, USA Aug. 2021 - May. 2024

Research Assistant

AT&T Labs, Bedminster, USA May. 2023 - Jul. 2023, Jun. 2024 - Aug. 2024

Research Intern

Research Experience

Uplink Traffic in 5G Jun. 2024 - Nov. 2024

- Characterize the behavior and impact of uplink-heavy traffic in different 5G network conditions.
- Investigate the impact of uplink-heavy traffic on performance of different video applications in 5G.

5G in the Sky Dec. 2023 - Feb. 2024

- Perform a drone-based case study to demonstrate the both high potential and high risk of 5G performance in the sky.
- Confirm the root causes of under-utilized 5G resources in the sky.

Failure Handling in 5G RAN Mar. 2023 - Oct. 2023

- Reveal three types of problematic failure handling on secondary radio access with measurement study in 5G networks.
- Pinpoint the root causes of problematic failure handling and quantify the impact on user performance.

Dependent Misconfigurations in 5G/4.5G Oct. 2022 - May. 2023

- Implement delta state machine (DSM), a new model to examine problematic dependencies among varying configurations.
- Utilize DSM to automatically detect misconfiguration instances in real-world datasets.

5G Experience Measurement Apr. 2021 - Jul. 2022

- Measure and characterize 5G experience on coverage, availability and performance with three main US operators.
- Identify performance issues leading to unsatisfactory 5G experience and analyze the root causes.
- Design a patch solution *5GBoost*, and validate its effectiveness to realize more 5G potentials.

Selected Publications

- **Yanbing Liu**, and Chunyi Peng, "Handling Failures in Secondary Radio Access Failure Handling in Operational 5G Networks," *IEEE Transactions on Mobile Computing*, 2024.
- **Yanbing Liu**, Jingqi Huang and Chunyi Peng, "The Sky is Not the Limit: Unveiling Operational 5G Potentials in the Sky," *IEEE/ACM International Symposium on Quality of Service (IWQoS '24)*, Jun 2024.
- **Yanbing Liu**, Junpeng Guo and Chunyi Peng, "Demystifying Secondary Radio Access Failures in 5G," *The 25th International Workshop on Mobile Computing Systems and Applications (HotMobile '24)*, Feb 2024.
- *Zhehui Zhang, ***Yanbing Liu**, Qianru Li, Zizheng Liu, Chunyi Peng, and Songwu Lu, "Dependent Misconfigurations in 5G/4.5G Radio Resource Control," *ACM International Conference on emerging Networking EXperiments and Technologies (CoNEXT '23)*, Dec 2023.
- *Qianru Li, *Zhehui Zhang, **Yanbing Liu**, Zhaowei Tan, Chunyi Peng and Songwu Lu, "CA++: Enhancing Carrier Aggregation Beyond 5G," *The 29th International Conference on Mobile Computing and Networking (MobiCom '23)*, Oct 2023.
- **Yanbing Liu** and Chunyi Peng, "A Close Look at 5G in the Wild: Unrealized Potentials and Implications," *IEEE International Conference on Computer Communications (INFOCOM '23)*, May 2023.