Kai Ling

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EDUCATION

Purdue University — **West Lafayette, USA**
PhD(expected) Department of Computer Science — Aug. 2019 - Present

Huazhong University of Science and Technology (HUST) — **Wuhan, China**
Bachelor of Science in Computer Science and Technology — Aug. 2015 – July 2019
GPA: 3.8/4.0

AWARDS

1. Freshmen Scholarship (1 out of 120), HUST — 2015
2. National Scholarship (2 out of 120), HUST — 2017
3. Model Student of Academic Records (5 out of 120), HUST — 2017
4. Awarded Outstanding Student (4 out of 120), HUST — 2017

SELECTED RESEARCH EXPERIENCES

Research Assistant | MSSN Lab | Purdue — **West Lafayette, US**
Advisor: Chunyi Peng, Associate Professor, Purdue University

Developer & Project Member | 5G INDY mobility measurement Project — Mar. 2021 – Now

- Developed a backward compatible measurement Android app with MI-Lab which can run experiments at mobile devices automatically with remote commands from the server, collecting data traces from all RAN layers for 5G.
- Measured US mobile network performance in mobility cases and explored the mobility support in a city scale for mmWave/Sub-6GHz in Indianapolis in reality, covered more than 200 miles and 40 hours currently.
- Designed and carried on different types of experiments to simulate daily cases for UEs in terms of velocity, blockage, direction and etc.

Project Leader | Cellular-Connected UAVs measurement Project — July 2020 – Oct 2020

- Conducted the first city-scale what-if study to examine feasibility and potential issues of flying UAVs over the existing cellular networks.
- Ran extensive flying measurements (45 hour, 1010 km) over representative(urban, suburban, rural) regions in the metropolitan area.
- Compared data performance and mobility support on the fly and on the drive, and quantitatively assess how latency and failures vary when LTE extends its support from the ground to the sky with deep RAN analysis in RAN layers' data traces.
- Made several new findings and gained insights to improve performance and even the roll-out of cellular-operated UAVs.

Project Member | Handoff Project — Oct. 2019 – Jan. 2020

- Investigated an important yet unexplored performance problem of the performance gap between devices get in reality and what they can get at best in operational cellular networks.
- Collected cell information data for 739 hrs and 8756 kms in terms of four primary operators in United States.
- Made a first attempt to uncover, quantify and understand such great missed performance(up to 60x miss at one location) in the wild.
- Offered a more efficient way to make the existing data more readable and comparable from the aspect of time and space.

Project Leader | Mobility Management Map — July 2018 – Nov. 2018

- Enabled the instant processing and instant echo of huge data containing handoff configurations from more than 32,000 cells and over 18,700 handoff instances worldwide.
- Reorganized the database and designed a brand new way to show data to make the process of analyzing and displaying data run ten times faster than before.
- Developed an automatic online service which visualizes handoff configuration data and the data analysis to better support mobility research.
- Prepared a poster which was adopted by the ACM Internet Measurement Conference (IMC 2018) as their official Poster.

PUBLICATIONS

Conference Papers

- 1. Haotian Deng, **Kai Ling**, Junpeng Guo, Chunyi Peng, *Unveiling the Missed 4.5G Performance In the Wild*, ACM Hotmobile 2020, accepted.
- 2. Yuanjie Li, Chunyi Peng, Zhehui Zhang, Zhaowei Tan, Haotian Deng, Jinghao Zhao, Qianru Li , Yunqi Guo, **Kai Ling**, Boyan Ding, Hewu Li, Songwu Lu, *Experience: A Five-Year Retrospective of XYZTool*, Mobicom'21, accepted.

Posters

- 1. **Kai Ling***, Jiaqi Xu*, Zhuo Jiang*, Haotian Deng, Chunyi Peng, *MMMap: Mobility Management Map of Global Carriers Networks At Your Hands*, ACM Internet Measurement Conference (IMC'18) Poster, accepted. (*co-first authors)
- 2. **Kai Ling**, Haotian Deng, Junpeng Guo, Chunyi Peng, *Poster: Unveiling the Missed 4.5G Performance In the Wild*, ACM Hotmobile 2020, accepted.

SELECTED COURSE PROJECTS

Project Leader| A Managing System For Online Reservation | HUST — Sept. 2017 - Nov. 2017
Course: ***Software Engineering***

- Built a reservation system to register online in hospitals solely with many functions, following the standards in Software Engineering such as data flow diagram and IPO sheet;
- Utilized the structured analysis and OOA to analyze the requirements of the doctors, patients and the managers of the hospital;
- Obtained a high score of 96 in the project evaluation, ranking the Top 3 in all teams;

LEADERSHIP AND ACTIVITIES

Piano Pedagogy | Chorus of HUST — Sept. 2016 - Present

- Performed at more than 20 concerts.
- Praised by many professors including Gregory Wait, Dean of the Department of Music at Stanford University.
- Entered the national competition finals during the University Students Arts Festival in China.
- Volunteered for the Internet Innovation and Entrepreneurship Competition in 2016 in China.

SKILLS

- **Programming Languages**: Proficient in C/C++/JAVA/Python, Android, Assembly Language, Matlab;
- **Languages**: Mandarin (Native), English (Fluent, with ample experience in scientific English reading and writing).