

Summary

- Ph.D. candidate at Tsinghua University. Successfully published papers on using big data science & machine learning to characterize WiFi and education performances.
- Experienced with development of software products and systems. Led the design, development and promotion of 3 popular products at Tsinghua University.
- Leader of two science and technology related student organizations at Tsinghua.

Education

Ph.D. student – 2012 to present (Expected graduation: July 2017)

Institute for Interdisciplinary Information Sciences (IIIS), Tsinghua University.

- Advisors: [Thomas Moscibroda](#), [Dan Pei](#)
- Research interests: Data science, Network science; Machine learning; WiFi, Mobile & ubiquitous computing; Analyses and predictions of large-scale human behaviors.

Bachelor – 2008 to 2012

Department of Computer Science and Technology, Tsinghua University.

Experience

Founder & President, [Lab \$\mu\$ Student Geek Association](#)

Tsinghua University, Beijing, [2013.03 – 2016.05]

- Founded and organized the development (including Android, iOS, Web and DevOps groups), design, marketing and HR teams of the association.
- Led the >50-people Lab μ on design, development and promotion of 3 successful products: 2 popular mobile apps and 1 toolkit for several aspects of campus life.

Founder, [Club \$\epsilon\$ Neuroscience Student Interest Group](#)

Tsinghua University, Beijing, [2015.12 – present]

Core member, [maTH \$\mu\$ Computer Algebra System Team](#)

Tsinghua University, Beijing, [2008.11 – 2013.03]

- Developed major parts of the system, including expression representation, pattern matching, symbolic integration, kernel interpreter, etc.
- Won the Top Prize of the 11th "Challenge Cup" China National Contest of College Students' Extracurricular Scientific and Technological Work.

National team candidate, China National Olympiad in Informatics (NOI)

China, [2007.08 – 2008.02]

- Won gold medal (3rd place) of China NOI 2007

Products

TUNet mobile app

Mobile tool app for the campus network of Tsinghua, which helps students to automatically login, manage and protect their campus network accounts, etc.

- Uses long-running foreground service (in Android), background hotspot helper (in iOS) and multiprocessing to automatically operate and manage network account.
- ~20000 users (out of ~57000 people living at Tsinghua) and 70+ releases for both Android and iOS from August 2013 to August 2016. ~3000 daily active users.
- 83000+ lines of Java, Objective-C, C++ and XML code in the latest snapshot.
- I contributed 31% of 2700+ commits, and designed the material UI of the app.

Tsinghua Now mobile app

Mobile helper app for campus life at Tsinghua, which presents prioritized information card flow to notify students about deadlines, course schedules and announcements. It also provides several plugins, such as GPA calculator, to simplify the campus life.

- Adopted tech: ReactiveX, dependency injection, continuous integration, etc.
- 3300+ users and 20+ releases for both Android and iOS from September 2015 to August 2016. ~700 daily active users.
- 160000+ lines of Java, Swift, Javascript and XML code in the latest snapshot.
- I contributed 22% of 1200+ commits, and guided the design team of the app.

CapsKit campus event service

Toolkit for large performances (such as student festivals). It consists of deployment of enterprise WLAN (WiFi Network), WeChat wall, lottery page and Danmaku system.

- Served at ~20 large events (each with hundreds of audiences) in early 2016.
- I organized the whole team, and led the hardware (8 APs, 1 AC, 1 server, 300+m cables) deployment and the software configuration of the enterprise WLAN.

Research Projects

EDUM education measurement & **PrePer** student performance prediction systems

EDUM: Classroom Education Measurements via Large-scale WiFi Networks

Mengyu Zhou, Minghua Ma, Yangkun Zhang, Kaixin Sui, Dan Pei, Thomas Moscibroda
published @UbiComp'16 (The 17th ACM International Joint Conference on Pervasive and Ubiquitous Computing. Heidelberg, Germany, September 2016)

Characterizing Student Performance via Large-scale WiFi Network Measurements

Mengyu Zhou, Zhihan Li, Nengwen Zhao, Minghua Ma, Dan Pei, Thomas Moscibroda
submitted to WWW'17 (The 26th International World Wide Web Conference)

EDUM measures punctuality and distraction metrics of students via campus WiFi network and mobile apps. PrePer characterizes and predicts student performances using measurements of in-class and out-class behaviors. Automatic course rating will be an extension of EDUM and PrePer.

- Deployment of EDUM at Tsinghua is one of the largest-scale classroom education measurements via WLAN and mobile apps on a densely-populated campus.
- Data visualization, statistical analyses & hypothesis tests on educational behaviors.
- Machine learning models are built to find interpretable patterns and make accurate predictions on student performances (GPA and progression).
- Tracked 2000+ volunteer students in ~2500 courses from late 2015 to early 2016.
- One of the 34 (8 are led by student) Tsinghua Education Reformation projects.

WifiSeer network diagnose and optimization system

Characterizing and Improving WiFi Latency in Large-scale Operational Networks

Kaixin Sui, Mengyu Zhou, Dapeng Liu, Minghua Ma, Dan Pei, Youjian Zhao, Zimu Li, Thomas Moscibroda

published @MobiSys'16 (The 14th Annual International Conference on Mobile Systems, Applications, and Services. Singapore, June 2016)

A framework to measure and characterize WiFi latency at large scale. WifiSeer helps: understand radio factor effects, diagnose high WiFi latency and select low-latency AP.

- Machine learning models on the complex relationship between WiFi latency and dozens of WiFi performance metrics, device attributes and environmental factors.
- Deployed at Tsinghua and measured WiFi latencies of ~47000 devices.
- 72% latencies are reduced by >50% after devices' re-associate to suggested APs.

MobiCamp research testbed

MobiCamp: a Campus-wide Testbed for Studying Mobile Physical Activities

Mengyu Zhou, Kaixin Sui, Minghua Ma, Youjian Zhao, Dan Pei, Thomas Moscibroda

published @WPA'16 (The 3rd International Workshop on Physical Analytics. Singapore, June 2016)

A testbed for studying mobility, social interactions, WiFi performance, education, etc.

- Data collection using Flask app and MongoDB in Docker containers orchestrated by Docker Compose and Consul on servers monitored by DataDog and Slack.
- Parallel processing of large-scale data in cluster using Python, R, C++ and Spark.
- 620000+ smartphones were tracked by >2800 APs on Tsinghua campus. 5700+ opt-in mobile users of TUNet and Tsinghua Now also contributed app data.

Awards & Certificates

- Tsinghua – Baidu 1st class Scholarship (2016)
- 1st Prize & Best Choice Award of Tsinghua 4th Innovation Contest (2015)
- 3rd Prize of Tsinghua 2nd Optimization & Innovation Contest (2013)
- Progressive Innovation Prize of the 13th "Challenge Cup" China National Contest of College Students' Extracurricular Scientific and Technological Work (2013)
- Top Prize of the 11th "Challenge Cup" China National Contest of College Students' Extracurricular Scientific and Technological Work (2009)
- Scholarship for Freshman, Tsinghua University (2008)
- One of the 50 finalists of TopCoder 2008 Worldwide High School Tournament

- 1st place of TopCoder 2007 Sichuan Province College Tour
- One of the 50 finalists of both Baidu Astar Programming Contests 2007 & 2008
- Gold Medal (3rd place) of China NOI (National Olympiad in Informatics) 2007

- One of the 50 graduates of Tsinghua 4th Spark Program / Class for Talents on Academic and Technology Innovations (2010-2012)
- DELE (Diplomas of Spanish as a Foreign Language) A1 & A2
- Certificate of "Intel Cup" 1st Innovation and Venture Practice Summer Camp (2009)
- Certificates, verifications and completions of > 50 online courses on Coursera, edX and Udacity (by August 2016)

Skills

Proficient: Data analysis, Software Engineering, Android, Java, Python, R, Git...

Experienced: Machine learning, Spark, iOS, Docker, Nginx, MongoDB, C++, Swift...

Familiar: UX design, Web full-stack, Elasticsearch, Go, Neuroscience, Psychology...

Languages: Chinese, English, Español.