Yuanchun Li

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Research Interests

Software GUI analysis: I designed and implemented a series of methods and tools for analyzing and mining software GUI, using program analysis and machine learning techniques. My research has been applied in the following domains:

1. Detecting security and vulnerability problems of mobile apps through GUI modelling and testing;
2. Mining personal knowledge from mobile app usage traces and logs for user modelling;
3. Understanding GUI design and interaction patterns using deep learning.

Education

Ph.D., Computer Science, Peking University   2014.09 – Now

- Advisors: Yao Guo, Xiangqun Chen, Gang Huang

Visiting Student, HCII, Carnegie Mellon University   2016.09 – 2017.09

- Advisors: Jason I. Hong, Yuvraj Agarwal

B.S., Computer Science, Peking University   2010.09 – 2014.09

Professional Experiences

Research Intern, Microsoft Research, Redmond, USA   2018.05 – 2018.08

- Advisors: Oriana Riva
- Worked on converting traditional software into conversational bots

Software Intern, Xiaomi Monetization Department, Beijing, China   2017.10 – 2018.05

- Advisors: Chengming Wen
- Worked on building personal knowledge graphs for privacy-friendly user modeling

Selected Honors, Grants and Awards

National Scholarship	2017
IS-EUD Best Paper Award	2017
Bosch/Bezirk Internet of Things Hackathon - 1st place ($1000)	2016
UbiComp Best Paper Honorable Mention Award	2016
Google Summer of Code ($5500)	2016
Merit Student at Peking University	2016
Google Summer of Code ($5500)	2015

Publications

- **Peer-reviewed Journal Papers**

  [J.1] **Yuanchun Li**, Fanglin Chen, Toby Jia-Jun Li, Yao Guo, Gang Huang, Matthew Fredrikson, Yuvraj Agarwal, and Jason I. Hong. 2017. PrivacyStreams: Enabling Transparency in Personal Data Processing for Mobile Apps. Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. 1, 3, Article 76 (September 2017), 26 pages. (IMWUT, aka. UbiComp)

  [J.2] **Yuanchun Li**, Baoxiong Jia, Yao Guo, and Xiangqun Chen. 2017. Mining User Reviews for Mobile App Comparisons. Proc. ACM Interact. Mob. Wearable Ubiquitous Technol. 1, 3, Article 75 (September 2017), 15 pages. (IMWUT, aka. UbiComp)

  [J.3] Haoyu Wang, **Yuanchun Li**, Yao Guo, Yuvraj Agarwal, and Jason I. Hong. 2017. Understanding the Purpose of Permission Use in Mobile Apps. ACM Trans. Inf. Syst. 35, 4, Article 43 (July 2017), 40 pages (TOIS)

- **Peer-reviewed Conference Papers**

  [C.1] Yao Guo, **Yuanchun Li**, Ziyue Yang, Xiangqun Chen. 2018. What's inside your app?: Understanding Feature Redundancy in Mobile Apps. The IEEE/ACM International Conference on Program Comprehension (ICPC)

  [C.2] Toby Jia-Jun Li, **Yuanchun Li**, Fanglin Chen and Brad A. Myers. 2017. Programming IoT Devices by Demonstration Using Mobile Apps. End-User Development. International Symposium on End User Development (IS-EUD, Best Paper Award)

  [C.3] **Yuanchun Li**, Yao Guo, and Xiangqun Chen. 2016. PERUIM: understanding mobile application privacy with permission-UI mapping. In Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp, Best Paper Honorable Mention Award)

  [C.4] **Yuanchun Li**, Yao Guo, Junjun Kong and Xiangqun Chen. 2015. Fixing Sensor-Related Energy Bugs Through Automated Sensing Policy Instrumentation. IEEE/ACM International Symposium on Low Power Electronics and Design (ISLPED)

- **Posters and Demos**

  [P.1] **Yuanchun Li**, Ziyue Yang, Yao Guo and Xiangqun Chen. 2017. DroidBot: A Lightweight UI-Guided Test Input Generator For Android. 2017 IEEE/ACM 39th International Conference on Software Engineering Companion (ICSE-C)

- **Techical Report**

  [T.1] **Yuanchun Li**, Ziyue Yang, Yao Guo, Xiangqun Chen, Yuvraj Agarwal, and Jason Hong. "Automated Extraction of Personal Knowledge from Smartphone Push Notifications." arXiv preprint arXiv:1808.02013

Open-Source Software

- DroidBot – A Lightweight UI-Guided Test Input Generator (300+ stars)
  - https://github.com/honeynet/droidbot
- PrivacyStreams – A Library for Easy and Secure Personal Data Processing (200+ stars)
  - https://github.com/PrivacyStreams/PrivacyStreams

Teaching Experience

- Teaching Assistant, Operating System Labs (honor track)   Fall 2014, Spring 2015
  Fall 2015, Spring 2016
- Teaching Assistant, Compiler Techniques   Spring 2015, Spring 2016
- Teaching Assistant, Introduction to Computer Systems   Fall 2013, Fall 2014
- Mentor, Google Summer of Code   Summer 2015, Summer 2016

Languages and Skills

- Language – Chinese (Mandarin) – Native
- Language – English – Professional working proficiency
- Programming Languages – Python, Java, C++, JavaScript, Scala, SQL, Lisp
- Techniques – Program analysis, reinforcement learning, applied natural language processing