

# Tianshi Li

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**Email:** [tianshil@cs.cmu.edu](mailto:tianshil@cs.cmu.edu)      **Website:** [tianshili.me](http://tianshili.me)      **Google Scholar**      **Twitter:** @tianshi\_li

**Research interests**      My main research interest lies at the intersection of Human-Computer Interaction, Privacy and Security, and Software Engineering.  
I study privacy problems from developers' perspectives using a human centered approach – namely, understanding their challenges for protecting user privacy and creating tools to empower them to make privacy-friendly apps.

**Education**      **Carnegie Mellon University**      Pittsburgh, PA  
PhD in Human-Computer Interaction      Sept. 2016 – Present  
Advisor: [Prof. Jason Hong](#)  
Thesis Committee: Jason Hong (Chair), Lorrie Cranor, Brad Myers, Yuvraj Agarwal (CMU S3D), Tadayoshi Kohno (University of Washington)

**Peking University**      Beijing, China  
B.S. in Computer Science, Summa Cum Laude      Sept. 2012 – July. 2016

**Honors and awards**

Rising Stars in EECS Workshop	2022
Best Paper Honorable Mention CHI'22	2022
CMU CyLab Presidential Fellowship	2021
PEPR'20 Diversity Grant	2020
Outstanding Graduate Award, Beijing	2016
Outstanding Graduate Award, Peking University	2016
ACM-ICPC Asia Regional Chengdu Site Gold Medal	2013
ACM-ICPC Asia Regional Chengdu Site Best Women Team	2013

**Peer-reviewed conference and journal papers**

[C.11] **Understanding Challenges for Developers to Create Accurate Privacy Nutrition Labels** 🏆  
*Tianshi Li, Kayla Reiman, Yuvraj Agarwal, Lorrie Faith Cranor, Jason I. Hong.*  
Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems (CHI 2022)  
*Received Best Paper Honorable Mention Award.*

[C.10] **C-PAK: Correcting and Completing Variable-length Prefix-based Abbreviated Keystrokes**  
*Tianshi Li, Philip Quinn, Shumin Zhai.*  
ACM Transactions on Computer-Human Interaction (TOCHI), 2022

[C.9] **Charting App Developers' Journey Through Privacy Regulation Features in Ad Networks**

Mohammad Tahaei, Kopo M. Ramokapane, *Tianshi Li*, Jason I. Hong, Awais Rashid.

Proceedings on Privacy Enhancing Technologies (PETS) 2022

**[C.8] Understanding Privacy-Related Advice on Stack Overflow**

Mohammad Tahaei, *Tianshi Li*, Kami Vaniea.

Proceedings on Privacy Enhancing Technologies (PETS) 2022

**[C.7] Honeysuckle: Annotation-Guided Code Generation of In-App Privacy Notices**

*Tianshi Li*, Elijah B. Neundorfer, Yuvraj Agarwal, Jason I. Hong.

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, Volume 5 Issue 3, 2021 / Ubicomp 2021

**[C.6] Alert Now or Never: Understanding and Predicting Notification Preferences of Smartphone Users**

*Tianshi Li*, Julia Katherine Haines, Miguel Flores Ruiz de Eguino, Jason I. Hong, Jeffrey Nichols.

ACM Transactions on Computer-Human Interaction (TOCHI), 2021

**[C.5] What Makes People Install a COVID-19 Contact-Tracing App? Understanding the Influence of App Design and Individual Difference on Contact-Tracing App Adoption Intention**

*Tianshi Li*, Camille Cobb, Jackie (Junrui) Yang, Sagar Baviskar, Yuvraj Agarwal, Beibei Li, Lujo Bauer, Jason I. Hong.

Special Issue on IoT for Fighting COVID-19 of Elsevier Pervasive and Mobile Computing (PMC) Journal, 2021

**[C.4] How Developers Talk about Personal Data and What It Means for User Privacy: A Case Study of a Developer Forum on Reddit**

*Tianshi Li*, Elizabeth Louie, Laura Dabbish, and Jason I. Hong.

Proceedings of the ACM on Human-Computer Interaction, 4, CSCW3, 2021

**[C.3] Coconut: An IDE plugin for developing privacy-friendly apps**

*Tianshi Li*, Yuvraj Agarwal, and Jason I. Hong.

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, Volume 2 Issue 4, 2018 / Ubicomp 2019

**[C.2] Demystifying Complex Workload-DRAM Interactions: An Experimental Study**

Saugata Ghose, *Tianshi Li*, Nastaran Hajinazar, Damla Senol Cali, Onur Mutlu.

Proceedings of the ACM on Measurement and Analysis of Computing Systems (SIGMETRICS), 2019

	<p><b>[C.1] Understanding Latency Variation in Modern DRAM Chips: Experimental Characterization, Analysis, and Optimization</b>  Kevin K. Chang, Abhijith Kashyap, Hasan Hassan, Saugata Ghose, Kevin Hsieh, Donghyuk Lee, <i>Tianshi Li</i>, Gennady Pekhimenko, Samira Manabi Khan, Onur Mutlu.  SIGMETRICS 2016</p>
In-submissions	<p><b>[I.1] Matcha: An IDE Plugin for Creating Accurate Privacy Nutrition Labels</b>  <i>Tianshi Li</i>, Lorrie Faith Cranor, Yuvraj Agarwal, Jason I. Hong.  Under review at CHI 2023</p>
Preprints	<p><b>[P.2] Decentralized is not risk-free: Understanding public perceptions of privacy-utility trade-offs in COVID-19 contact-tracing apps</b>  <i>Tianshi Li</i>, Jackie (Junrui)Yang, Cori Faklaris, Jennifer King, Yuvraj Agarwal, Laura Dabbish, Jason I. Hong.  in arXiv preprint, arXiv:2005.11957, 2020</p> <p><b>[P.1] Using ECC DRAM to Adaptively Increase Memory Capacity</b>  Yixin Luo, Saugata Ghose, <i>Tianshi Li</i>, Sriram Govindan, Bikash Sharma, Bryan Kelly, Amirali Boroumand, Onur Mutlu.  in arXiv preprint, arXiv:1706.08870, 2017</p>
Lightly reviewed papers	<p><b>[W.2] Understanding iOS Privacy Nutrition Labels: An Exploratory Large-Scale Analysis of App Store Data</b>  Yucheng Li, Deyuan Chen, <i>Tianshi Li</i>, Yuvraj Agarwal, Lorrie Faith Cranor, Jason I. Hong.  CHI 2022 Late-Breaking Work</p> <p><b>[W.1] Analyzing the Role of General App Creators in Protecting the Privacy of Vulnerable Populations</b>  <i>Tianshi Li</i>, Jason I. Hong.  CHI 2020 Workshop: Privacy and Power: Acknowledging the Importance of Privacy Research and Design for Vulnerable Populations</p>
Employment	<p><b>Google Inc.</b> Pittsburgh, PA  Research intern March 2019 – May 2019  Mentor: <a href="#">Dr. Jeffrey Nichols</a></p> <p><b>Google Inc.</b> Mountain View, CA  Software Engineering Intern, Ph.D. May 2018 – August 2018  Mentor: <a href="#">Dr. Shumin Zhai</a></p> <p><b>Google Inc.</b> Mountain View, CA</p>

	Software Engineering Intern, Ph.D. Mentor: <a href="#">Dr. Jeffrey Nichols</a>	May 2017 – August 2017
	<b>Google Inc.</b> Engineering Practicum Intern	Beijing, China July 2014 – November 2014
Research experience	<b>CMU CHIMPS Lab</b> Research Assistant (Ph.D. student)	Pittsburgh, PA September 2016 – Present
	<b>CMU SAFARI Group</b> Research Assistant (undergraduate student) Mentor: Prof. Onur Mutlu	Pittsburgh, PA Nov. 2015 – Jan. 2016
	<b>CMU SAFARI Group</b> Research Assistant (undergraduate student) Mentor: Prof. Onur Mutlu	Pittsburgh, PA July. 2015 – Sept. 2015
Teaching experience	<b>Teaching assistant, HCII (CMU)</b> 05-610: User-Centered Research and Evaluation This is an introductory course for HCI/UX research methods. My responsibilities included grading assignments and exams, preparing teaching materials, giving recitation lectures every week about UX design methods and practices, helping students define and conduct UX research projects, and holding office hours.	Fall 2021
	<b>Teaching assistant, HCII (CMU)</b> 05-630: Programming User Interfaces This course is a combination of programming course and design studio. My responsibilities included grading assignments and exams, preparing teaching materials, giving weekly recitation lectures focused on the programming part (web development), and holding office hours.	Fall 2019
Academic service	<b>Program Committee Member</b> USENIX Security'22 CHI'22 Late-Breaking Work CHI'23 Late-Breaking Work	
	<b>External Reviewer</b> 🏆 Received "special recognitions" for outstanding reviews for ACM CHI 2021, 2022, ACM CSCW 2021, and ACM DIS 2021. 2022: IMWUT 2022, UIST 2022, CHI 2023 2021: CHI 2022, CSCW 2021&2022, DIS 2021, CHI LBW 2021, BMJ 2021 2020: CHI 2021, CHI Case Studies 2021, ACM DTRAP 2019: CHI Case Studies 2020	

2018: TOPS 2019, CHI LBW 2019

2017: IMWUT 2018

Institutional service      Ph.D. admission committee member, HCII, CMU      December 2022  
Co-organizer, HCII-LTI social computing reading group, CMU      2019 to 2020

Invited talks      **Matcha: an IDE Plugin for Creating Accurate Privacy Nutrition Labels**  
presented at UNC Charlotte ITIS 4420 (guest speaker)      October 2022  
presented at 2022 CMU CyLab Partners Conference      October 2022

**Understanding Challenges for Developers to Create Accurate Privacy Nutrition Labels**

presented to the [ACT – The App Association](#), a trade association representing over 5,000 application software developers and small and mid-sized technology companies in the U.S. and Europe      May 2022

presented at the [CATCUS/P Colloquium](#)      May 2022

presented at CHI 2022      May 2022

**Alert Now or Never: Understanding and Predicting Notification Preferences of Smartphone Users**

presented at CHI 2022      May 2022

**Annotation-Guided IDE plugins for Building Privacy-Friendly Apps**

presented at 2021 CMU CyLab Partners Conference      October 2021

**Honeysuckle: Annotation-Guided Code Generation of In-App Privacy Notices**

presented at UbiComp 2021      September 2021

**PhraseWriter: Error-Tolerant Abbreviated Phrase Input for Mobile Text Input**

presented at Google SpeakFaster Group      August 2021

**Understanding the Influence of App Design and Individual Difference on Contact-Tracing App Adoption Intention**

presented at MIT PACT Lab      May 2021

**How Developers Talk about Personal Data and What It Means for User Privacy: A Case Study of a Developer Forum on Reddit**

presented at CSCW 2020      October 2020

**Coconut: An IDE Plugin for Developing Privacy-Friendly Apps**

presented at UbiComp 2019      September 2019

## Media coverage

[What your Android phone's new "data safety" labels mean](#)

*The Washington Post*. Chris Velazco. May 5, 2022

[CyLab researchers investigate Apple's privacy labels](#)

*CMU CyLab news*. Daniel Tkacik. April 28, 2022

[Google Adds Privacy Labels to Apps. But Will They Help?](#)

*Consumer Reports*. Thomas Germain. April 26, 2022

[Perception of Privacy-Utility Tradeoffs in Contact-Tracing Apps Key to Widespread Adoption](#)

*CMU HCII news*. June 5, 2020

[HCII Responds to the Pandemic](#)

*CMU HCII news*. May 29, 2020

[This new tool for developers can help preserve app users' privacy](#)

*Tech Xplore*. Daniel Tkacik. October 7, 2019

[This new tool for developers can help preserve app users' privacy](#)

*CMU CyLab news*. Daniel Tkacik. October 4, 2019

## Academic mentees

Ziqi Pan (2022 Fall, Tsinghua University undergrad, class 2020)

Ashley (Chuoqiao) Lin (2022 Fall, CMU Decision Science undergrad, class 2021)

Menghan Liu (2022 Fall, CMU Cognitive Science undergrad, class 2020)

Julia (Juran) Zhang (2022 Fall, CMU SCS undergrad, class 2021)

Oliver Jin (2022 Summer and Fall, UCI undergrad)

Margaret He (2022 Spring to 2022 Fall, CMU SCS undergrad, class 2021)

Yucheng Li (2021 Fall to 2022 Fall, CMU master's student, class 2021)

Shuo Jin (2021 Fall, CMU undergrad, class 2019)

Deyuan Chen (2021 Summer, CMU master's student, class 2021)

Kayla Reiman (2021 Summer, CMU master's student, class 2021)

Ginny (Yuanfei) Zhao (2021 Spring, CMU SCS undergrad, class 2018)

Sam Yong (2020 Spring, CMU SCS undergrad, class 2017)

Elizabeth Louie (2020 Spring, CMU SCS undergrad, class 2019)

Haley Park (2019 Fall, CMU MHCI, class 2019)

Elijah Neundorfer (2019 Summer, Columbus State undergrad, class 2017)

Tiffany Yu (2019 Spring & Fall, CMU SCS undergrad, class 2017)