

Toby Jia-Jun Li

Curriculum Vitae

Human-Computer Interaction Institute
School of Computer Science
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Research Interests

Human-Computer Interaction (HCI), Intelligent User Interface, End-User Development, Programming by Demonstration, Multi-modal Interaction, Conversational Agents.

Education

Ph.D. in Human-Computer Interaction (*in progress*) **2015 – Present**
Carnegie Mellon University, *Pittsburgh, PA*
Human Computer Interaction Institute, School of Computer Science
Advisor: Dr. Brad A. Myers

B.S. with Distinction in Computer Science **2012 – 2015**
University of Minnesota, *Minneapolis, MN*
Department of Computer Science and Engineering
Advisor: Dr. Brent J. Hecht

Peer-reviewed Conference Papers

- [C.1] **Toby Jia-Jun Li** and Oriana Riva. 2018. KITE: Building conversational bots from mobile apps. *Proceedings of the 16th ACM International Conference on Mobile Systems, Applications, and Services (MobiSys 2018)*.
- [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) 2017. LNCS, vol. 10303. Best Paper Award.*
- [C.3] **Toby Jia-Jun Li**, Amos Azaria and Brad A. Myers. 2017. SUGILITE: Creating Multimodal Smartphone Automation by Demonstration. *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI 2017). Best Paper Honorable Mention Award.*
- [C.4] 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. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (PACM IMWUT / UbiComp 2017)*.
- [C.5] Isaac Johnson, Yilun Lin, **Toby Jia-Jun Li**, Andrew Hall, Aaron Halfaker, Johannes Schöning and Brent Hecht. 2016. Not at Home on the Range: Peer Production and the Urban/Rural Divide. *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI 2016)*.

- [C.6] **Toby Jia-Jun Li**, Shilad Sen and Brent Hecht. 2014. Leveraging Advances in Natural Language Processing to Better Understand Tobler's First Law of Geography. *Proceedings of the 22nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL 2014)*.
- [C.7] Shilad Sen, **Toby Jia-Jun Li**, WikiBrain Team and Brent Hecht. 2014. WikiBrain: Democratizing Computation on Wikipedia. *Proceedings of the 10th International Symposium on Open Collaboration (OpenSym / WikiSym 2014)*.

Book Sections

- [B.1] **Toby Jia-Jun Li**, Igor Labutov, Brad A. Myers, Amos Azaria, Alexander I. Rudnicky and Tom M. Mitchell. 2018. Teaching Agents When They Fail: End User Development in Goal-oriented Conversational Agents. Chapter of *Studies in Conversational UX Design*, Robert J. Moore, Margaret H. Szymanski, Raphael Arar, Guang-Jie Ren eds. Springer.
- [B.2] Brad A. Myers, Andrew Ko, Chris Scaffidi, Stephen Oney, YoungSeok Yoon, Kerry Chang, Mary Beth Kery and **Toby Jia-Jun Li**. 2017. Making End User Development More Natural. Chapter of *New Perspectives in End-User Development*, Fabio Paternò and Volker Wulf, eds. Springer.

Workshop Papers

- [W.1] **Toby Jia-Jun Li**, Igor Labutov, Xiaohan Nancy Li, Tom M. Mitchell and Brad A. Myers. 2018. Supporting Co-Adaptive Human-Agent Relationship through Programming by Demonstration using Existing GUIs. *Rethinking Interaction CHI 2018 Workshop*.
- [W.2] **Toby Jia-Jun Li**. 2017. End User Mobile Task Automation using Multimodal Programming by Demonstration. *IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2017) Graduate Consortium*.
- [W.3] **Toby Jia-Jun Li**, Brad A. Myers, Amos Azaria, Igor Labutov, Alexander I. Rudnicky and Tom M. Mitchell. 2017. Designing a Conversational Interface for a Multimodal Smartphone Programming-by-Demonstration Agent. *Conversational UX Design CHI 2017 Workshop*.
- [W.4] **Toby Jia-Jun Li** and Brad A. Myers. 2016. Smartphone Text Entry in Cross-Application Tasks. *CHI 2016 Workshop on Inviscid Text Entry and Beyond*.

Invited Talks and Presentations

- [P.1] Brad A. Myers and **Toby Jia-Jun Li**. 2018. Teaching Intelligent Agents New Tricks: Natural Language Instructions plus Programming-by-Demonstration for Teaching Tasks. *Human Computer Interaction Consortium (HCIC '18)*. Watsonville, CA. June 25, 2018.
- [P.2] **Toby Jia-Jun Li**, Josh Ford, Doug Downey, Brent Hecht, Vijay Murganoor and Shilad Sen. 2015. Atlasify – The Geography of Everything. *3M Science and Engineering Symposium*. St Paul, MN. June 25, 2015.
- [P.3] **Toby Jia-Jun Li**, Josh Ford, Doug Downey, Brent Hecht, Vijay Murganoor and Shilad Sen. 2015. Atlasify – The Geography of Everything. *The Social Media and Business Analytics Collaborative (SOBACO) Spring Research Symposium*. Minneapolis, MN. May 14, 2015.

- [P.4] **Toby Jia-Jun Li** and Brent Hecht. 2014. WikiBrain: Making Computer Programs Smarter with Knowledge from Wikipedia. *The Social Media and Business Analytics Collaborative (SOBACO) Spring Research Symposium*. Minneapolis, MN. May 6, 2014.

Research Experience

Engineering Implementation Consultant

Aug. 2017 – Present

Research Intern

May. 2017 – Aug. 2017

Microsoft Research, Redmond, WA

Mentor: Dr. Oriana Riva

- Designed and developed a new conversational bot development tool using deep neural network models, user task modeling and mobile app analysis.

Graduate Research Assistant

Aug. 2015 – Present

Human-Computer Interaction Institute, Carnegie Mellon University

- Working on SUGILITE, a system that enables end-users to program conversational agents for arbitrary task in any third-party Android app using a combination of demonstration and verbal instructions.

Research Assistant

Jan. 2013 – Aug. 2015

GroupLens Research, University of Minnesota

- Developed ATLASIFY – a novel information retrieval / interactive visualization system supporting exploratory search.
- Built large portions of WIKIBRAIN – a popular open-source software framework for knowledge mining and computation on Wikipedia.
- Conducted the first robust evaluation of Tobler's First Law of Geography leveraging advances in Wikipedia-based natural language processing.

Teaching Experience

Teaching Staff, CSCI 5715: From GPS and Google Maps to Spatial Computing

Fall 2014

Coursera MOOC & Dept. of Computer Science and Engineering at the U of Minnesota

Recorded video lectures, designed assignments and monitored the discussion forum.

Teaching Assistant, CSCI 2011: Discrete Structures of Computer Science

Fall 2013, Spring 2014

Dept. of Computer Science and Engineering at University of Minnesota

Led recitation sessions, held office hours and graded assignments.

Selected Honors, Grants and Awards

Yahoo! InMind Fellowship (\$300,000 over 3 years)	2016 – 2018
NSF Travel Grant for ACM MobiSys 2018 (\$1,500)	2018
Travel Grant for Rethinking Interaction CHI 2018 Workshop (\$1,000)	2018
IS-EUD 2017 Best Paper Award	2017
CHI 2017 Best Paper Honorable Mention Award	2017
2016 Bosch/Bezirk Internet of Things Hackathon – 1st place (\$1,000)	2016
University of Minnesota Gold Global Excellence Scholarship (\$33,680 over 4 years)	2012 – 2015
UROP Undergraduate Research Opportunity Program Grant (\$1,400)	2013 – 2014
NSF Travel Grant for ACM SIGSPATIAL 2014 (\$720)	2014.10
ESRI Scholarship (\$2,000)	2014.5
University of Minnesota Cultural Corps Awards (\$150)	2014.5

University of Minnesota College of Science and Engineering: Dean's List	2012 – 2015
ACM/ICPC International Collegiate Programming Contest World Final Qualifier	2013
AP Scholar with Distinction	2011

Reviewing Experience

CHI (2017-2018), **UIST** (2017-2018), **IMWUT** (2017-2018), **CSCW** (2018), **MobileHCI** (2018), **DIS** (2018), **TEI** (2018), **IJGIS** (2017)

- Received “special recognitions” for excellent reviews for UIST 2017 and CHI 2018.

Languages

English – Native or bilingual proficiency, **Chinese (Mandarin)** – Native or bilingual proficiency

Technical Skills

Programming Languages: C/C++, Java, Python, Scheme, Android, JavaScript, SQL, HTML and others

Keywords: Machine Learning, Deep Learning, Natural Language Processing, Dialog Systems, Conversational UX