Toby Jia-Jun Li

Curriculum Vitae

Department of Computer Science and Engineering
College of Engineering
University of Notre Dame
Notre Dame, IN 46556 USA

Email: toby.j.li@nd.edu
Website: http://toby.li/
Tel: (574) 631-5375
Twitter: @TobyJLi

Research Interests

Human-Computer Interaction (HCI), Human-AI Interaction, Multi-Modal Interaction, Human-Centered Machine Learning, End-User Development, Programming Tools, Human-Centered Data Science.

Professional Appointments

Assistant Professor 2021–Present
University of Notre Dame, *Notre Dame, IN*
Department of Computer Science and Engineering

Education

Ph.D. in Human-Computer Interaction 2021
Carnegie Mellon University, *Pittsburgh, PA*
Human Computer Interaction Institute, School of Computer Science
Advisor: Brad A. Myers
Committee: Tom M. Mitchell, Jeffery P. Bigham, John Zimmerman, and Philip J. Guo

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

Selected Honors and Awards

AnalytiXIN Faculty Fellowship	2022
Google Research Scholar Award	2022
CMU School of Computer Science Honorable Mention Dissertation Award	2021
CHI 2021 Best Paper Honorable Mention Award [C.14]	2021
UIST 2020 Best Paper Award [C.13]	2020
Yahoo! InMind Fellowship *(Full support for 4 years*)	2016–2019
IS-EUD 2017 Best Paper Award [C.6]	2017
CHI 2017 Best Paper Honorable Mention Award [C.5]	2017
VL/HCC 2017 Doctoral Consortium Grant	2017
2016 Bosch Internet of Things Hackathon – 1st place	2016
University of Minnesota Gold Global Excellence Scholarship	2012–2015

ESRI Scholarship *($2,000)*	2014
University of Minnesota Cultural Corps Award *($150)*	2014
ACM/ICPC International Collegiate Programming Contest Word Final Qualifier	2013

Major Refereed Conference Papers

(Underlines indicate students under my supervision)

[C.22] **VISAR: A Human-AI Argumentative Writing Assistant with Visual Programming and Rapid Draft Prototyping**
Zheng Zhang, Jie Gao, Ranjodh Singh Dhaliwal, and **Toby Jia-Jun Li**
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2023)

[C.21] **PEANUT: A Human-AI Collaborative Tool for Annotating Audio-Visual Data**
Zheng Zhang*, Zheng Ning*, Chenliang Xu, Yapeng Tian, and **Toby Jia-Jun Li**
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2023)

[C.20] **PaTAT: Human-AI Collaborative Qualitative Coding with Explainable Interactive Rule Synthesis**
Simret Araya Gebreegziabher*, Zheng Zhang*, Xiaohang Tang, Yihao Meng, Elena Glassman, and **Toby Jia-Jun Li**
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2023)

[C.19] **An Empirical Study of Model Errors and User Error Discovery and Repair Strategies in Natural Language Database Queries**
Zheng Ning*, Zheng Zhang*, Tianyi Sun, Yuan Tian, Tianyi Zhang, and **Toby Jia-Jun Li**
Proceedings of the 28th ACM Conference on Intelligent User Interfaces (IUI 2023)

[C.18] **A Bottom-Up End-User Intelligent Assistant Approach to Empower Gig Workers against AI Inequality**
Toby Jia-Jun Li, Yuwen Lu, Jaylexia Clark, Meng Chen, Victor Cox, Meng Jiang, Yang Yang, Tamara Kay, Danielle Wood, and Jay Brockman
Proceedings of the 1st Symposium on Human-Computer Interaction for Work (CHIWORK 2022)

[C.17] **It is AI's Turn to Ask Human a Question: Question and Answer Pair Generation for Children Storybooks in FairytaleQA Dataset**
Bingsheng Yao, Dakuo Wang, Tongshuang Wu, Zheng Zhang, **Toby Jia-Jun Li**, Mo Yu, and Ying Xu
Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (ACL 2022)

[C.16] **Fantastic Questions and Where to Find Them: FairytaleQA–An Authentic Dataset for Narrative Comprehension**
Ying Xu, Dakuo Wang, Mo Yu, Daniel Ritchie, Bingsheng Yao, Tongshuang Wu, Zheng Zhang, **Toby Jia-Jun Li**, Nora Bradford, Branda Sun, Tran Hoang, Yisi Sang, Yufang Hou, Xiaojuan Ma, Diyi Yang, Nanyun Peng, Zhou Yu, and Mark Warschauer
Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (ACL 2022)

[C.15] **StoryBuddy: A Human-AI Collaborative Agent for Parent-Child Interactive Storytelling with Flexible Parent Involvement**
Zheng Zhang, Ying Xu, Yanhao Wang, Bingsheng Yao, Daniel Ritchie, Tongshuang Wu, Mo Yu, Dakuo Wang, and **Toby Jia-Jun Li**
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2022)

[C.14] **Screen2Vec: Semantic Embedding of GUI Screens and GUI Components**
Toby Jia-Jun Li, Lindsay Popowski, Tom M. Mitchell, and Brad A. Myers
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2021)
Best Paper Honorable Mention Award

[C.13] **Multi-Modal Repairs of Conversational Breakdowns in Task-Oriented Dialogs**
Toby Jia-Jun Li, Jingya Chen, Haijun Xia, Tom M. Mitchell, and Brad A. Myers
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2020)
Best Paper Award

[C.12] **Geno: A Developer Tool for Authoring Multimodal Interaction on Existing Web Applications**
Ritam Sarmah, Yunpeng Ding, Di Wang, Cheuk Yin Phipson Lee, **Toby Jia-Jun Li**, and Xiang 'Anthony' Chen
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2020)

[C.11] **Interactive Task Learning from GUI-Grounded Natural Language Instructions and Demonstrations**
Toby Jia-Jun Li, Tom M. Mitchell, and Brad A. Myers
Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL 2020): System Demonstrations

[C.10] **Privacy-Preserving Script Sharing in GUI-based Programming-by-Demonstration Systems**
Toby Jia-Jun Li, Jingya Chen, Brandon Canfield, and Brad A. Myers
Proceedings of the ACM on Human-Computer Interaction (CSCW 2020)

[C.9] **PUMICE: A Multi-Modal Agent that Learns Concepts and Conditionals from Natural Language and Demonstrations**
Toby Jia-Jun Li, Marissa Radensky, Justin Jia, Kirielle Singarajah, Tom M. Mitchell, and Brad A. Myers
Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2019)

[C.8] **A Multi-Modal Interface for Specifying Data Descriptions in Programming by Demonstration Using Verbal Instructions**
Toby Jia-Jun Li, Igor Labutov, Xiaohan Nancy Li, Xiaoyi Zhang, Wenze Shi, Wanling Ding, Tom M. Mitchell, and Brad A. Myers
Proceedings of the IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2018)

[C.7] **KITE: Building Conversational Bots from Mobile Apps**
Toby Jia-Jun Li and Oriana Riva
Proceedings of the the ACM Conference on Mobile Systems, Applications, and Services (MobiSys 2018)

[C.6] **Programming IoT Devices by Demonstration Using Mobile Apps**
Toby Jia-Jun Li, Yuanchun Li, Fanglin Chen, and Brad A. Myers
International Symposium on End User Development (IS-EUD 2017). LNCS, vol. 10303
Best Paper Award

[C.5] **SUGILITE: Creating Multimodal Smartphone Automation by Demonstration**
Toby Jia-Jun Li, Amos Azaria, and Brad A. Myers
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2017)
Best Paper Honorable Mention Award

[C.4] **PrivacyStreams: Enabling Transparency in Personal Data Processing for Mobile Apps**
Yuanchun Li, Fanglin Chen, **Toby Jia-jun Li**, Yao Guo, Gang Huang, Matthew Fredrikson, Yuvraj Agarwal, and Jason I. Hong
Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (PACM IMWUT / UbiComp 2017)

[C.3] **Not at Home on the Range: Peer Production and the Urban/Rural Divide**
Isaac Johnson, Yilun Lin, **Toby Jia-Jun Li,** Andrew Hall, Aaron Halfaker, Johannes Schöning, and Brent Hecht
Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2016)

[C.2] **Leveraging Advances in Natural Language Processing to Better Understand Tobler's First Law of Geography**
Toby Jia-Jun Li, Shilad Sen, and Brent Hecht
Proceedings of the ACM Conference on Advances in Geographic Information Systems (SIGSPATIAL 2014)

[C.1] **WikiBrain: Democratizing Computation on Wikipedia**
Shilad Sen, **Toby Jia-Jun Li,** WikiBrain Team, and Brent Hecht
Proceedings of the International Symposium on Open Collaboration (OpenSym / WikiSym 2014)

Refereed Workshop Papers

[W.9] **Exploring Mobile UI Layout Generation using Large Language Models Guided by UI Grammar**
Yuwen Lu, Ziang Tong, Anthea Qinyi Zhao, Chengzhi Zhang, and **Toby Jia-Jun Li**
ICML 2023 Workshop on Artificial Intelligence and Human-Compter Interaction (AI&HCI)

[W.8] **Using Large Generative Models for Storyboarding: Challenges and Goals**
Zheng Ning@, Dingzeyu Li, and **Toby Jia-Jun Li**
CHI 2023 Workshop on Intelligent and Interactive Writing Assistants (In2Writing)

[W.7] **An Empirical Study of Developer Behaviors for Validating and Repairing AI-Generated Code**
Ningzhi Tang*, Meng Chen*, Zheng Ning, Aakash Bansal, Yu Huang, Collin McMillan, and **Toby Jia-Jun Li**
The 13th Annual Workshop on the Intersection of PL and HCI (PLATEAU 2023)

[W.6] **MIMOSA: Human-in-the-Loop Generation of Spatial Audio from Videos with Monaural Audio**
Zheng Ning*, Zheng Zhang*, Jerrick Ban, Kaiwen Jiang, Ruohong Gan, Yapeng Tian, and **Toby Jia-Jun Li**
ECCV 2022 Workshop on Visual Learning of Sounds in Spaces (AV4D)

[W.5] **AI as an Active Writer: Interaction Strategies with Generated Text in Human-AI Collaborative Fiction Writing**
Daijin Yang, Yanpeng Zhou, Zhiyuan Zhang, **Toby Jia-Jun Li**, and Ray LC
IUI 2022 Workshop on Human-AI Co-Creation with Generative Models (HAI-GEN 2022)

[W.4] **Building an Interactive Storytelling Conversational Agent through Parent-AI Collaboration**
Zheng Zhang, Ying Xu, Yanhao Wang, Bingsheng Yao, Daniel Ritchie, Tongshuang Wu, Mo Yu, Dakuo Wang, and **Toby Jia-Jun Li**
CSCW 2021 Workshop on Inclusive and Collaborative Child-Facing Voice Technologies (CUI@CSCW)

[W.3] **Towards Effective Human-AI Collaboration in GUI-Based Interactive Task Learning Agents**
Toby Jia-Jun Li, Jingya Chen, Tom M. Mitchell, and Brad A. Myers
CHI 2020 Workshop on Artificial Intelligence for HCI: A Modern Approach (AI4HCI)

[W.2] **Interactive Task and Concept Learning from Natural Language Instructions and GUI Demonstrations**
Toby Jia-Jun Li, Marissa Radensky, Justin Jia, Kirielle Singarajah, Tom M. Mitchell, and Brad A. Myers
AAAI 2020 Workshop on Intelligent Process Automation (IPA-20)

[W.1] **A Multi-Modal Approach to Concept Learning in Task Oriented Conversational Agents**
Toby Jia-Jun Li, Marissa Radensky, Tom M. Mitchell, and Brad A. Myers
CHI 2019 Workshop on Conversational Agents: Acting on the Wave of Research and Development

Lightly-Reviewed Publications and Extended Abstracts

[L.10] **Modeling Programmer Attention as Scanpath Prediction**
Aakash Bansal, Chia-Yi Su, Zachary Karas, Yifan Zhang, Yu Huang, **Toby Jia-Jun Li**, and Collin McMillan
The 38th IEEE/ACM International Conference on Automated Software Engineering (ASE 2023): The New Ideas and Emerging Results (NIER) track

[L.9] **DiffCoder: A GPT-Powered WorkFlow for Collaborative Qualitative Analysis**
Jie Gao, Yuchen Guo, **Toby Jia-Jun Li**, and Simon Perrault
CSCW'23 Companion: Companion Publication of the 2023 Conference on Computer Supported Cooperative Work and Social Computing

[L.8] **Designing for AI-Powered Social Computing Systems**
Gionnieve Lim, Hyunwoo Kim, Yoonseo Choi, **Toby Jia-Jun Li**, Chinmay Kulkarni, Hariharan Subramonyam, Joseph Seering, Michael S. Bernstein, Amy X. Zhang, Elena Glassman, Simon Perrault, and Juho Kim
CSCW'23 Companion: Companion Publication of the 2023 Conference on Computer Supported Cooperative Work and Social Computing

[L.7] **Shaping the Emerging Norms of Using Large Language Models in Social Computing Research**
Hong Shen, Tianshi Li, **Toby Jia-Jun Li**, Joon Sung Park, and Diyi Yang
CSCW'23 Companion: Companion Publication of the 2023 Conference on Computer Supported Cooperative Work and Social Computing

[L.6] **SHAI 2023: Workshop on Designing for Safety in Human-AI Interactions**
Nitesh Goyal, Sungsoo Ray Hong, Regan Mandryk, **Toby Jia-Jun Li**, Kurt Luther, and Dakuo Wang
IUI 2023 Companion: The 28th ACM Conference on Intelligent User Interfaces

[L.5] **The Future of Computational Approaches for Understanding and Adapting User Interfaces**
Yue Jiang, Yuwen Lu[@], Christof Lutteroth, **Toby Jia-Jun Li**, Jeffrey Nichols, and Wolfgang Stuerzlinger
Extended Abstracts of the 2023 ACM Conference on Human Factors in Computing Systems (CHI EA '23)

[L.4] **Computational Approaches for Understanding, Generating, and Adapting User Interfaces**
Yue Jiang, Yuwen Lu[@], Jeffrey Nichols, Wolfgang Stuerzlinger, Chun Yu, Christof Lutteroth, Yang Li, Ranjitha Kumar, and **Toby Jia-Jun Li** [50%]
Extended Abstracts of the 2022 ACM Conference on Human Factors in Computing Systems (CHI EA '22)

[L.3] **Bridging the Gap Between UX Practitioners' Work Practices and Machine-Learning-Enabled Design Support Tools**
Yuwen Lu[@], Chengzhi Zhang, Iris Zhang, and **Toby Jia-Jun Li** [100%]
Extended Abstracts of the 2022 ACM Conference on Human Factors in Computing Systems (CHI EA '22)

[L.2] **How End Users Express Conditionals in Programming by Demonstration for Mobile Apps**
Marissa Radensky, **Toby Jia-Jun Li**, and Brad A. Myers
IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2018) Poster Track

[L.1] **End User Mobile Task Automation using Multimodal Programming by Demonstration**
Toby Jia-Jun Li
IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2017) Graduate Consortium

Book Sections

[B.3] **Demonstration+Natural Language: Multimodal Interfaces for GUI-based Interactive Task Learning Agents**
Toby Jia-Jun Li, Tom M. Mitchell, and Brad A. Myers
Chapter of *Artificial Intelligence for Human Computer Interaction: A Modern Approach.* Springer. 2021.

[B.2] **Teaching Agents When They Fail: End User Development in Goal-Oriented Conversational Agents**
Toby Jia-Jun Li, Igor Labutov, Brad A. Myers, Amos Azaria, Alexander Rudnicky, and Tom M. Mitchell
Chapter of *Studies in Conversational UX Design.* Springer. 2018.

[B.1] **Making End User Development More Natural**
Brad A. Myers, Amy Ko, Chris Scaffidi, Stephen Oney, YoungSeok Yoon, Kerry Chang, Mary Beth Kery, and **Toby Jia-Jun Li**
Chapter of *New Perspectives in End-User Development*. Springer. 2017.

Patents

[P.1] **Automatically Generating Conversational Services from a Computing Application**
Oriana Riva, Jason Kace, Doug Burger, and **Toby Jia-Jun Li**
U.S. Patent 10,705,892. Granted July 7, 2020; Filed June 7, 2018.

Grants and Gifts

NSF: FW-HTF-RM: Bridging AI Inequality in Digitally-Mediated Gig Work
CMMI-2326378
Lead PI: Toby Li; Co-PI: Meng Jiang, Tamara Kay, Yang Yang, Jay Brockman; Sr. Personnel: Danielle Wood
2023-2027; $999,980 (Li's credit $299,994)

NSF: Broadening Participation in Computing (BPC) Supplement to CCF-2211428 "Towards More Human-like AI Models of Source Code"
CCF- 2315887
Lead PI: Collin McMillan; Co-PI: Toby Li
2023-2024; $128,000

AnalytiXIN Idea Discovery Proposal: Human-AI Collaboration in Data Annotation
PI: Toby Li
2022; $13,734

NVIDIA Academic Hardware Grant: Generating Immersive VR Scenes with Spatial Audio from Monaural 2D Videos
PI: Toby Li; Student: Zheng Ning
2022; $4,650 in equipment

NSF: Collaborative Research: SHF: Medium: Towards More Human-like AI Models of Source Code
CCF-2211428
Lead PI: Collin McMillan (ND); Co-PI: Toby Li and Yu Huang (Vanderbilt University)
2022-2026; $1,295,880 (ND's share $864,000; My credit $432,000)

Google Research Scholar Award: Effective Human-AI Collaboration with Data-Driven Models in UX Design
PI: Toby Li
2022-2023; $60,000

University of Notre Dame Asia Research Collaboration Grant: Creativity and Cultural Factors in Human-AI Co-Creation in Fiction Writing
PI: Toby Li; Collaborator: Ray LC (City University of Hong Kong)
2022-2023; $9,835

Google Cloud Research Credit Grant: Procedure Generalization in Interactive Task Learning
PI: Toby Li
2021-2022; $5,000 in credits

Google Cloud Research Credit Grant: Screen2Vec: A New Method for Embedding GUI Screens in Vector Spaces
PI: Toby Li
2020-2021; $1,000 in credits

Google Cloud Research Credit Grant: SUGILITE: A Multi-Modal Agent that Learns Tasks from Natural Language and Demonstrations
PI: Toby Li
2019-2020; $2,000 in credits

Relevant Research Experience

Engineering Implementation Consultant Aug. 2017–Dec. 2017
Research Intern May. 2017–Aug. 2017
Microsoft Research, Redmond, WA
Mentor: Dr. Oriana Riva

Research Assistant Jan. 2013–Aug. 2015
GroupLens Research, University of Minnesota

Teaching Experience

Instructor, *CSE 40424: Human-Computer Interaction* Spring 2023
Department of Computer Science and Engineering, University of Notre Dame

Instructor, *CSE 60427: Human-Centered Computing Research* Fall 2021, 2022, 2023
Department of Computer Science and Engineering, University of Notre Dame

Teaching Assistant, *05-391 / 05-891: Designing Human-Centered Software* Spring 2019
Human-Computer Interaction Institute, Carnegie Mellon University

Teaching Assistant, *05-410 / 05-610: User-Centered Research & Evaluation* Fall 2018
Human-Computer Interaction Institute, Carnegie Mellon University

Teaching Staff, *CSCI 5715: From GPS and Google Maps to Spatial Computing* Fall 2014
Coursera MOOC & Dept. of Computer Science and Engineering, Univ. of Minnesota

Teaching Assistant, *CSCI 2011: Discrete Structures of Computer Science* Fall 2013, Spring 2014
Department of Computer Science and Engineering, University of Minnesota

Students Advised at Notre Dame

Doctoral Students

Ningzhi Tang (Ph.D. in Computer Science and Engineering) 2023–Present

Chaoran Chen (Ph.D. in Computer Science and Engineering) 2022–Present

Yuwen Lu (Ph.D. in Computer Science and Engineering) 2021–Present
Zheng Ning (Ph.D. in Computer Science and Engineering) 2021–Present
Simret Araya Gebreegziabher (Ph.D. in Computer Science and Engineering) 2021–Present
Zheng Zhang (Ph.D. in Computer Science and Engineering) 2021–Present

Doctoral Thesis Committee

Oghenemaro (Maro) Anuyah (Ph.D. in Computer Science and Engineering) Expected Graduation in 2024
Aakash Bansal (Ph.D. in Computer Science and Engineering) Expected Graduation in 2023
Gonzalo Martinez (Ph.D. in Computer Science and Engineering) Graduated in 2022
Sakib Haque (Ph.D. in Computer Science and Engineering) Graduated in 2022

Undergraduate Students

Tori Banda (B.S. in Computer Science) Summer 2023
Luke Cao (B.S. in Computer Science) Summer 2023
Ava DeCroix (B.A. in Computer Science) 2023–Present
Tommy Rozgonyi (B.S. in Computer Science) 2022–Present
Michael Bsales (B.A. in Computer Science) 2022–Present
Ryan Pairitz (B.S. in Computer Science) 2022
Jerrick Ban (B.S. in Computer Science) 2022–Present
Ziang Tong (B.S. in Computer Science) 2022–Present
Victor Cox (B.S. in Computer Science) 2021–2022
Meng Chen (B.S. in Computer Science) 2021–Present

Visiting Students

Sangwook Lee (Visiting Graduate Student from KAIST) Summer 2023
Weijun Li (Visting Graduate Student from Zhejiang University) Summer 2023
Jie Gao (Visiting Graduate Student from Singapore U. of Tech. and Design) Spring 2023
Chao Zhang (Zhejiang University, now Ph.D. student at Cornell) Summer 2022
Xiaohang Tang (Liverpool University, now Ph.D. student at Virginia Tech) Summer 2022
Ningzhi Tang (SUSTech, now Ph.D. student at Notre Dame) Summer 2022

Students Mentored Prior to Notre Dame

Tiffany Cai (CMU, now at Google X) Spring 2017
- Worked on a new mobile keyboard for recording text entries in demonstration.

Jeremy Wei (CMU, now at Flatiron Health) Spring 2017
- Worked on identifying crucial actions in demonstrated scripts.

Xiaohan Nancy Li (CMU, now at Microsoft) Fall 2017
- Worked on representing and querying snapshots of mobile GUIs. [C.8][W.4]

Wenze Shi (CMU, now at Facebook) Spring 2018
- Worked on extracting semantic entities from mobile GUIs. [C.8]

Wanling Ding (CMU, now at Shopee) Spring 2018

- *Worked on generating user friendly representations for demonstrated scripts.* [C.8]

Marissa Radensky (Amherst College, REU at CMU, now Ph.D. student at UW) Summer 2018
- *Worked on supporting conditionals in programming by demonstration.* [W.5][W.6][C.9]

Justin Jia (CMU, now at Citadel) Spring 2019
- *Worked on semantic parsing for concept instructions.* [C.9]

Kirielle Singarajah (CMU, now at Google) Spring 2019
- *Worked on semantic parsing for concept instructions.* [C.9]

Brandon Canfield (Yale University, REU at CMU) Summer 2019
- *Worked on enabling privacy-preserving sharing of end user developed scripts.* [C.10]

William Timkey (Cornell University, REU at CMU, now Ph.D. student at NYU) Summer 2019
- *Worked crowd-sourced data collection for semantic parsers.*

Jingya Chen (CMU, first position at MIT, now at Microsoft Research) Summer 2019–2020
- *Worked on multi-modal error handling for speech interfaces.* [W.8][C.10][C.13]

Lindsay Popowski (Harvey Mudd, REU at CMU, now Ph.D. student at Stanford) Summer 2020
- *Worked on the semantic embedding of GUI screens and components*. [C.14]

🏆 **CRA 2021 Outstanding Undergraduate Researcher Award**

Vanessa Hu (Harvard University, REU intern at CMU) Summer 2020
- *Worked on the fuzzy lexicon matching and time expression parsing in semantic parsers.*

Selected Talks and Seminars

[T.12] **Human-AI Collaboration for Ambiguities, Uncertainties, and Evolving Objectives**
Invited Keynote at the *ICML 2023 Workshop on Artificial Intelligence & Human Computer Interaction*
Honolulu, HI. Jul. 29, 2023

[T.11] **A Bottom-Up Approach to Empower Gig Workers against AI Inequality**
Invited Talk at HCI Summer Workshop at School of Information Studies, Syracuse University
Host: EunJeong Cheon
Virtual Visit, Aug. 4, 2022

[T.10] **End User Empowerment through Human-AI Collaboration**
Invited Talk at HCI Group, Princeton University
Host: Andrés Monroy-Hernández
Virtual Visit, Jun. 17, 2022

[T.9] **Human-AI Collaboration in Data Annotation**
Invited Talk at Elevance Health/Anthem
Host: Adarsh Ramesh
Virtual Visit, Nov. 16, 2022

Invited Talk at IBM Research Almaden
Host: Lucian Popa and Dakuo Wang
Virtual Visit, Apr. 22, 2022

[T.8] **Screen2Vec: Semantic Embedding of GUI Screens and What They are Useful for**
Invited Talk at HCI Group, Stanford University
Host: Michael Bernstein
Virtual Visit, Feb. 22, 2021

[T.7] **Interactive Systems for Configuring, Extending, and Developing AI Applications**
Invited Talk at Apple Research
Host: Jeff Nichols
Virtual Visit, Mar. 8, 2021

Invited Talk at HCI Lab, Hasso Plattner Institut
Host: Patrick Baudisch
Virtual Visit, Mar. 4, 2021

Invited Talk at Sigma Research Seminar Series
Host: Çağatay Demiralp
Virtual Visit, Feb. 24, 2021

Invited Talk at Microsoft Research Montréal
Host: Adam Trischler
Virtual Visit, Jan. 11, 2021

Invited Talk at Google People + AI Research (PAIR) Seminar
Host: Carrie Cai
Virtual Visit, Oct. 13, 2020

Invited Talk at IBM Research Cambridge
Host: Casey Dugan
Virtual Visit, Aug. 12, 2020

[T.6] **Interactive Task Learning from GUI-Grounded Natural Language Instructions and Demonstrations**
Invited Talk at Apple Research
Host: Jeff Nichols
Virtual Visit, Dec. 7, 2022

Invited Talk at *the AAAI-20 Workshop on Intelligent Process Automation (IPA-20)*
New York, NY. Feb. 7, 2020

[T.5] **Machine Learning from Human Instruction: Every Person a Programmer**
Invited Talk at J.P. Morgan (*with Forough Arabshahi*)
Host: Sumitra Ganesh and Denis Kochedykov
New York, NY. May 24, 2019

[T.4] **Teaching Intelligent Agents New Tricks: Natural Language Instructions plus Programming-by-Demonstration for Teaching Tasks**
Invited Talk at *Human Computer Interaction Consortium (HCIC '18)* (*with Brad Myers*)
Watsonville, CA. Jun. 25, 2018

[T.3] **SUGILITE: A Multi-Modal Agent that Learns Tasks from Natural Language and Demonstrations**
Invited Demo at *the ACL 2020 Workshop on Natural Language Interfaces*
Seattle, WA. July 10, 2020

Invited Demo at *the ACM SIGACCESS Conference on Computers and Accessibility (ASSETS 2019)*
Pittsburgh, PA. Oct. 28, 2019

Invited Lightning Talk at CMU HCII 25th Anniversary
Pittsburgh, PA. Oct. 25, 2019

Invited Talk at Oath (formerly Yahoo!)
Sunnyvale, CA. May 30, 2018

[T.2] **Atlasify – The Geography of Everything**
Invited Demo at *the 3M Science and Engineering Symposium*
St Paul, MN. Jun. 25, 2015

Invited Demo at *the Social Media and Business Analytics Collaborative (SOBACO) Research Symposium*
Minneapolis, MN. May 14, 2015

[T.1] **WikiBrain: Making Computer Programs Smarter with Knowledge from Wikipedia**
Invited Demo at *the Social Media and Business Analytics Collaborative (SOBACO) Research Symposium*
Minneapolis, MN. May 6, 2014.

Invited Guest Lectures

Interactive Task Learning Spring 2023
CSE 599H: Artificial Intelligence (AI) vs Intelligence Augmentation (IA)
Host: Ranjay Krishna
University of Washington, Department of Computer Science and Engineering

AI Inequality in Gig Work Fall 2022
HIST 30951: Just Wage Research
Host: Dan Graff
University of Notre Dame, Department of History

Human-AI Collaborative Systems Spring 2022
EECS 598: Human-AI Interaction and Systems
Host: Anhong Guo
University of Michigan, Department of Computer Science and Engineering

Human-AI Collaborative Systems Fall 2021
CS 228 Human-Computer Interaction
Host: Yuanyuan Feng
University of Vermont, Department of Computer Science

Toolkits for Creating Conversational Interfaces Fall 2020
05-830: Advanced User Interface Software
Host: Brad Myers
Carnegie Mellon University, Human-Computer Interaction Institute

Professional Service

Academic Service

Organizing Committee
CHIWORK 2023 Program Chair
ACM CSCW 2023 Demo Chair
ACM UIST 2021 Web and Design Chair

Workshop Organizer
CHI 2023 Workshop on Computational Approaches for User Interfaces
IUI 2023 Workshop on Designing for Safety in Human-AI Interactions (SHAI 2023)
CHI 2022 Workshop on Computational Approaches for User Interfaces

Special Interest Group (SIG) Organizer
CSCW 2023 SIG on Designing for AI-Powered Social Computing Systems
CSCW 2023 SIG on Shaping the Emerging Norms of Using LLMs in Social Computing Research

Associate Chair (AC) of Program Committee

ACM CHI 2024
ACM CHI 2023
ACM CHI 2022
ACM UIST 2021
ACM CHI 2020 Late Breaking Work Track
ACM CHI 2019 Late Breaking Work Track

Member of Program Committee

EMNLP 2022 Workshop on Data Science with Human in the Loop (DaSH 2022)
EMNLP 2021
KDD 2021 Workshop on Data Science with Human in the Loop (DaSH 2021)
ACL 2021 Workshop on NLP for Programming (NLP4Prog)
AAAI 2020 Workshop on Intelligent Process Automation (IPA 20)

Session Chair

ACM CHI 2023 Session on *Tools for Data Scientists and Literature Reviews*
CHIWORK 2022 Session on *Remote Work*
ACM CHI 2022 Session on *Interacting with Data* and Journal Session on *Context and the Interface*
ACM UIST 2021 Session on *Alternative Programming*
ACM CHI 2019 Session on *Conversational Interactions*

Conference Reviewer

ACM CHI (2017-2023), **ACM UIST** (2017-2023), **ACM CSCW** (2018-2023), **ACL** (2021), **ACM DIS** (2018-2021), **ACM MobileHCI** (2018-2020), **ACM TEI** (2018), **ACM SIGCSE** (2018), **ACM CHI PLAY** (2019)

Received "special recognitions" for outstanding reviews for ACM UIST 2017, ACM CHI 2018, ACM DIS 2020, ACM CHI 2021 (twice), ACM UIST 2022, and ACM CSCW 2022.

Journal Reviewer

ACM TOCHI (2021-2022), **ACM IMWUT** (2017-2020), **ACM TOSEM** (2022-2023), **IEEE TMC** (2018, 2022), **IEEE TSC** (2020), **IEEE Pervasive** (2018-2019), **IJGIS** (2017), **IEEE Access** (2019-2020), **Collective Intelligence** (2023)

Grant Proposal Reviewer/Panelist

Panelist, National Science Foundation (NSF) CISE (2022)
External Expert Referee, Italian Ministry of University and Research (MUR) (2022)
Reviewer, Indiana Clinical and Translational Sciences Institute (CTSI) (2021)

Departmental and Community Service

Committee Member, Notre Dame CSE Diversity, Equity, and Inclusion (DEI) Committee (2022-2023)
Committee Member, Lucy Family Institute Graduate Scholar Selection Committee (2022)
Faculty Leader, Notre Dame's Participation in TAPIA Conference of Diversity in Computing (2021-2023)
Committee Member, Notre Dame CSE Ph.D. Admissions Committee (2021-2023)
Member, CMU HCII Anti-Racism Work Group (2020-2021)
Coordinator, CMU HCII Open House Faculty Research Talks (2020-2021)
Committee Member, CMU HCII Faculty Lunch Organization Committee (2019-2020)
Committee Member, CMU HCII Ph.D. Student Lounge Committee (2019-2020)
Committee Member, CMU HCII Ph.D. Admissions Committee (2018-2019)
Student Volunteer, ACM IUI 2019, ACM SIGSPATIAL 2014

Languages

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

Technical Skills

Programming Languages: C/C++, Java, Python, Android, JavaScript, SQL, HTML and others
UX Skills: Qualitative Research, Quantitative Research, Experiment Design, Data Analysis, UX Design
Keywords: Machine Learning, Deep Learning, Natural Language Processing, Dialog Systems, Conversational UX