

Lei Shi

leiatlarge.github.io

Human-AI Interaction, Accessibility, Tools for Thoughts

Email: ls776@cornell.edu

EDUCATION

2014.8 - 2019.8 Ph.D. in Information Science

Cornell University

Committee: Shiri Azenkot (Chair), François Guimbretière, Serge Belongie

2014.8 - 2017.12 M.S. in Information Science

Cornell University

2010.9 - 2014.6 B.Eng. in Electrical Engineering

B.Eng. in Industrial Design

Zhejiang University

EMPLOYMENT

2019.10 - present Google Deepmind, Mountain View, CA

Software Engineer, Inception, Office of the CEO

Current project: bespoke user interfaces powered by generative models

- Teach LLMs to plan, design, and implement interactive user interfaces
- Design interaction techniques and UIs for handling ambiguous user journeys
- Explore accessibility applications enabled by bespoke user interfaces

Prior projects in Google Research (until 2024):

- Inkeraction - Ink interaction research for Android and Pixel
- Enhanced Select-to-Speak - WaveNet voices in ChromeOS
- Action Blocks - Google's first product for people with cognitive disabilities

2018.5 - 2018.8 Microsoft Research, Redmond, WA

Research Intern, Ability Team

Developed a video calling system that recognizes emotions in video calls and uses audio cues to convey the detected emotions to users with visual impairments.

2017.5 - 2017.8 Facebook, Menlo Park, CA

UX Research Intern, Growth

Analyzed data to identify potential users who had multiple Facebook accounts and conducted mix-method studies to explore the reasons for multiple accounts.

2016.5 - 2016.8 IBM Research, Yorktown Heights, NY

Research Intern, Cognitive Environments and Cognitive Objects Group

Developed a system that uses passive daily objects to control smart devices.

2014.8 - 2019.8 Cornell University, New York, NY

Research Assistant, Teaching Assistant

JOURNAL PUBLICATIONS

1. **LaMPost: AI Writing Assistance for Adults with Dyslexia Using Large Language Models**
doi Communication of ACM 67, 9, September 2024
Steven M. Goodman, Erin Buehler, Patrick Clary, Andy Coenen, Aaron Donsbach, Tiffanie N. Horne, Michal Lahav, Robert MacDonald, Rain Breaw Michaels, Ajit Narayanan, Mahima Pushkarna, Joel Riley, Alex Santana, **Lei Shi**, Rachel Sweeney, Phil Weaver, Ann Yuan, and Meredith Ringel Morris
2. **Tactile Materials in Practice: Understanding the Experiences of Teachers of the Visually Impaired**
doi TACCESS, 15, 3, Article 17, September 2022
Mahika Phutane, Julie Wright, Brenda Veronica Castro, **Lei Shi**, Simone R. Stern, Holly M. Lawson, and Shiri Azenkot
3. **Accessible Video Calling: Enabling Nonvisual Perception of Visual Conversation Cues**
doi CSCW, Article 131, November 2019
Lei Shi, Brianna J. Tomlinson, John Tang, Edward Cutrell, Daniel McDuff, Gina Venolia, Paul Johns, and Kael Rowan
4. **Designing and Evaluating a Customizable Head-mounted Vision Enhancement System for People with Low Vision**
doi TACCESS, 12, 4, Article 15, December 2019
Yuhang Zhao, Sarit Szpiro, **Lei Shi**, and Shiri Azenkot

FULL CONFERENCE PAPERS

1. **AmbigChat: Interactive Hierarchical Clarification For Ambiguous Open-Domain Question Answering**
To Appear UIST '25, 15 pages. 22.2% acceptance rate
Jiaju Ma, **Lei Shi**, Kenneth Robertsen, Peggy Chi
2. **WatchWithMe: LLM-Based Interactive Guided Watching of Review Videos**
doi CUI '25, 15 pages. 34.0% acceptance rate
Peggy Chi, Senpo Hu, **Lei Shi**, Tanya Kraljic PhD, Justin Secor, Tao Dong, Irfan Essa, and Mike Cleron.
3. **Inkeraction: An Interaction Modality Powered by Ink Recognition and Synthesis**
doi CHI '24, 26 pages. 26.4% acceptance rate
Lei Shi, Rachel Campbell, Peggy Chi, Maria Cirimele, Mike Cleron, Kirsten Climer, Chelsey Q Fleming, Ashwin Ganti, Philippe Gervais, Pedro Gonnet, Tayeb A Karim, Andrii Maksai, Chris Melancon, Rob Mickle, Claudiu Musat, Palash Nandy, Xiaoyu Iris Qu, David Robishaw, Angad Singh, Mathangi Venkatesan
4. **LaMPost: Design and Evaluation of an AI-assisted Email Writing Prototype for Adults with Dyslexia**
doi ASSETS '22, 18 pages. 26.5% acceptance rate. ***Best Paper Nominee***
Steven M. Goodman, Erin Buehler, Patrick Clary, Andy Coenen, Aaron Donsbach, Tiffanie N. Horne, Michal Lahav, Robert MacDonald, Rain Breaw Michaels, Ajit Narayanan, Mahima Pushkarna, Joel Riley, Alex Santana, **Lei Shi**, Rachel Sweeney, Phil Weaver, Ann Yuan, and Meredith Ringel Morris

5. **Molder: An Accessible Design Tool for Tactile Maps**
doi CHI '20, 14 pages. 24.3% acceptance rate
Lei Shi, Yuhang Zhao, Ricardo Gonzalez Penuela, Elizabeth Kupferstein, and Shiri Azenkot
6. **Designing Interactive 3D Printed Models with Teachers of the Visually Impaired**
doi CHI '19, Paper 197, 14 pages. 23.7% acceptance rate
Lei Shi, Holly Lawson, Zhuohao Zhang, and Shiri Azenkot
7. **Knock Knock, What's There: Converting Passive Objects into Customizable Smart Controllers**
doi MobileHCI'18, Article 31, 13 pages. 24.5% acceptance rate
Lei Shi, Maryam Ashoori, Yunfeng Zhang, and Shiri Azenkot
8. **Designing Interactions for 3D Printed Models with Blind People**
doi ASSETS '17, 200-209. 22.2% acceptance rate
Lei Shi, Yuhang Zhao, and Shiri Azenkot
9. **Markit and Talkit: A Low-Barrier Toolkit to Augment 3D Printed Models with Audio Annotations**
doi UIST '17, 493-506. 22.5% acceptance rate
Lei Shi, Yuhang Zhao, and Shiri Azenkot
10. **Tickers and Talker: An Accessible Labeling Toolkit for 3D Printed Models**
doi CHI '16, 4896-4907. 23.2% acceptance rate
Lei Shi, Idan Zelzer, Catherine Feng, Shiri Azenkot

OTHER CONFERENCE PUBLICATIONS

1. **Bespoke: Using LLM agents to generate just-in-time interfaces by reasoning about user intent**
doi ICM Companion '24, 78-81
Palash Nandy, Sigurdur Orn Adalgeirsson, Anoop K. Sinha, Tanya Kraljic, Mike Cleron, Lei Shi, Angad Singh, Ashish Chaudhary, Ashwin Ganti, Christopher A Melancon, Shudi Zhang, David Robishaw, Horia Ciurda, Justin Secor, Kenneth Aleksander Robertsen, Kirsten Climer, Madison Le, Mathangi Venkatesan, Peggy Chi, Peixin Li, Peter F McDermott, Rachel Shim, Selcen Onsan, Shilp Vaishnav, and Stephanie Guamán.
2. **Action Blocks: Making Mobile Technology Accessible for People with Cognitive Disabilities**
doi ASSETS '20, Article 90, 1-4. ***Best Artifact Award***
Lia Carrari, Rain Michaels, Ajit Narayanan, Lei Shi*, and Xiang Xiao
*Corresponding author, authors are listed alphabetically
3. **A Demonstration of Molder: An Accessible Design Tool for Tactile Maps**
doi ASSETS '19, 664-666
Lei Shi, Yuhang Zhao, Elizabeth Kupferstein, and Shiri Azenkot
4. **A Demo of Talkit++: Interacting with 3D Printed Models Using an iOS Device**
doi ASSETS '18, 429-431
Lei Shi, Zhuohao Zhang, Shiri Azenkot

5. **Designing interactive 3D printed models for blind students**
doi SIGACCESS Accessible Computing 120 (January 2018), 32-35
Lei Shi
6. **Magic Touch: Interacting with 3D Printed Graphics**
doi ASSETS '16, 329-330.
Lei Shi, Ross McLachlan, Yuhang Zhao, Shiri Azenkot
7. **Talkabel: A Labeling Method for 3D Printed Models**
doi ASSETS '15, 361-362. ***1st Place, Student Research Competition***
Lei Shi

PATENT AND DEFENSIVE PUBLICATIONS

1. **Hierarchical Disambiguation of Input Queries**
Patent, Filed
Lei Shi, Peggy Chi, Jiaju Ma
2. **Interactive Guided Video Watching**
Patent, Filed
Peggy Chi, Lei Shi, Irfan Essa, Senpo Hu
3. **Neural Networks for Manipulating Handwritten Documents**
Patent, Filed
Lei Shi et al. (24 authors)
4. **Presentation of Remotely Accessible Content for Optimizing Teleconference Resource Utilization**
Patent, US12088648B2
Qianjun Gan, Lei Shi, Yichen Huang, Aobo Zhou
5. **Document Mark-up and Navigation Using Natural Language Processing**
Patent, US2022/0318485A1
Ajit Narayanan, Lei Shi
6. **Combined Head Gestures for Improved User Interaction**
Defensive Publication, 2021
Lei Shi, Aobo Zhou
7. **Smart devices having recognition features**
Patent, US2018/0239435A1
Maryam Ashoori, Lei Shi, Yunfeng Zhang

TEACHING EXPERIENCE

- | | |
|----------------------------|---|
| 2016 W &
2017 S, 2018 S | INFO 5305: Usability and User Experience Research , Cornell Tech
Teaching Assistant |
| 2015 S & 2016 S | INFO 6410: Human Computer Interaction and Design , Cornell Tech
Teaching Assistant |

HONORS

- 2022 Best Paper Nominee, ASSETS 2022

- 2020** Best Artifact Award, ASSETS 2020
- 2015** First Place, Student Research Competition, ASSETS 2015
- 2015 - 2019** Oath Fellow, Connected Experiences Lab, Cornell Tech

SERVICE

- 2022** Accessibility Chair, ASSETS
- 2020 - 2023** Program Committee, ASSETS
- 2018** President, Ph.D. Student Association at Cornell Tech (PACT)
- 2018** Program Committee, ACM CHI Late Breaking Work
- 2015 - Present**
 - Peer Reviewer
 - ACM CHI, Conference on Human Factors in Computing
 - ACM UIST, Conference on User Interface Software and Technology
 - ACM MobileHCI, Conference on Mobile Human Computer Interaction
 - TACCESS, Transactions on Accessible Computing
 - IMWUT, The Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies