

# SIYAN ZHAO

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## SUMMARY

- A **user experience researcher** with over 7 years of experience in industry and academia.
- Designs and conducts **quantitative and qualitative** studies (e.g., interviews, surveys, think-alouds, prototype testing, lab studies, field studies, statistics) to uncover user and product needs.
- Collaborates with **cross-functional teams** of designers, product managers, and engineers to translate research results to **actionable insights and designs**.

## WORK EXPERIENCE

**Carnegie Mellon University** *Aug. 2015 - Mar. 2021*

*Graduate Researcher*

- Designed and ran multiple longitudinal studies with over 1000 participants to collect survey and smartphone sensor data.
- Created machine-learning models to predict the medium through which social interactions occur using sensor data from smartphones.
- Ran hierarchical linear regression analyses on longitudinal survey data to understand how social interactions affect well-being.

**Facebook** *May. 2019 - Aug. 2019*

*Research Consultant*

- Scoped research questions and lead qualitative analyses on a large-scale cross-cultural survey dataset about social interactions.
- Applied linear regression, topic modeling, and thematic analysis to quantitatively and qualitatively understand what makes social interactions meaningful.

**Facebook** *May. 2017 - Aug. 2017*

*Research Consultant*

- Worked in a cross-functional team of engineers, product managers, and research managers to prioritize research directions.
- Designed and led lab studies on perception of haptic phonemes.
- Presented the first set of haptic phonemes to senior researchers and managers.

**Disney Research, The Walt Disney Company** *Aug. 2015 - Dec. 2015*

*Research Consultant*

- Conducted co-design workshops with designers and design researchers to design and iterate on a haptic toolkit for media designers to create haptic experiences.
- Worked in a cross-functional team of software engineers, hardware engineers, and designers to improve on

the design of the toolkit.

**Disney Research, The Walt Disney Company** *Aug. 2014 - Jul. 2015*

*Research Associate*

- Lead lab studies to understand how people perceive haptics signals.
- Used ANOVA to understand how perception thresholds of haptic signals vary based on the frequency and amplitude of the signals.

**University of Pittsburgh Medical Center, HCI CAPSTONE** *Jan. 2014 - May 2014*

*User Research Lead*

- Worked with doctors, engineers and designers to build a decision aid for emphysema patients to decide if they need a lung transplant.
- Lead user studies, e.g., interviews, observations, and think-aloud sessions, with patients, caretakers, and other stockholders to uncover their needs.

**Disney Research, The Walt Disney Company** *May 2013 - Dec. 2013*

*Lab Associate*

- Designed and conducted lab studies to understand how people interpret haptics as semantics.
- Applied results in an application that assists children in story listening.

## EDUCATION

**Ph.D. in Human-Computer Interaction** *Mar. 2021*

Carnegie Mellon University, School of Computer Science

Advisor: Jason Hong, Robert Kraut

**M.S. in Human-Computer Interaction** *Dec. 2020*

Carnegie Mellon University, School of Computer Science

**B.S. in Cognitive Science & Human-Computer Interaction** *May 2014*

Carnegie Mellon University, GPA: 3.72 / 4.00

## SKILLS

**Programming Languages** Python, Stata, R, SQL, HTML/CSS/JavaScript

**Research Methods** Surveys, Interviews, Contextual Inquiry, Think-Aloud, Card-sorting

**Design Methods** Persona, Storyboarding, Wireframing, Prototyping, Paper Sketching

**Statistical Tools** T-test, ANOVA, Regression, Clustering, Principal Component Analysis

## PUBLICATIONS

### PEER-REVIEWED PAPERS

- [P13] Y. Huang, S. Zhao, M. L. Rivera, J. I. Hong, R. E. Kraut. (2021) "Predicting Well-being Using Short Ecological Momentary AudioRecordings", in Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing (CHI '21 EA).

- [P12] E. Litt, S. Zhao, R. E. Kraut, M. Burke. (2020) "What Are Meaningful Social Interactions in Today's Media Landscape? A Cross-Cultural Survey", in Social Media + Society.
- [P11] A. Israr, S. Zhao, Z. Schwemler, A. Fritz. (2019) "Stereohaptics Toolkit for Dynamic Tactile Experiences", in International Conference on Human-Computer Interaction. **(Best Paper Award)**
- [P10] C. Y. Park, C. Faklaris, S. Zhao, A. Sciuto, L. Dabbish, J. Hong. (2018) "*Share and Share Alike? An Exploration of Secure Behaviors in Romantic Relationships*", in Fourteenth Symposium on Usable Privacy and Security.
- [P9] J. McDonald, S. Zhao, J. Liu, M. L. Rivera. (2018) "*MaxiFab: Applied Fabrication to Advance Period Technologies*", in Proceedings of the 2018 ACM Conference Companion Publication on Designing Interactive Systems (DIS '18 Companion). **(Best Provocation Honorable Mention)**
- [P8] S. Zhao, A. Israr, F. Lau, F. Abnoui. (2018) "*Coding Tactile Symbols for Phonemic Communication*", in ACM Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems (CHI'18).
- [P7] Z. Chen, W. Hu, J. Wang, S. Zhao, B. Amos, G. Wu, K. Ha, K. Elgazzar, P. Pillai, R. Klatzky, D. Siewiorek, M. Satyanarayanan. (2017) "*An Empirical Study of Latency in an Emerging Class of Edge Computing Applications for Wearable Cognitive Assistance*", in IEEE Symposium on Edge Computing (SEC'17).
- [P6] S. Zhao, A. Israr, M. Fenner, R. L. Klatzky. (2017) "*Intermanual Apparent Tactile Motion and its Extension to 3D Interactions*", in IEEE Transactions on Haptics.
- [P5] S. Zhao, J. Lehman, A. Israr, & R. Klatzky. (2015) "*Using Haptic Inputs to Enrich Story Listening for Young Children*", in Proceedings of the 14th International Conference on Interaction Design and Children (IDC '15), pp. 239 - 242.
- [P4] S. Zhao, A. Israr, R. Klatzky. (2015) "*Intermanual apparent tactile motion on handheld tablets*", in World Haptics Conference (WHC '15), IEEE , pp. 241 - 247.
- [P3] A. Israr, S. Zhao, and O. Schneider. (2015) "*Exploring Embedded Haptics for Social Networking and Interactions*", in Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '15).
- [P2] O. Schneider, S. Zhao, & A. Israr. (2014) "*FeelCraft: User-Crafted Tactile Content*", in Proceedings of 1st Asia Haptics, Tsukuba, Japan.
- [P1] A. Israr, S. Zhao, K. Schwalje, R. Klatzky, & J. Lehman. (2014) "*Feel effects: enriching storytelling with haptic feedback*", in ACM Transactions on Applied Perception (TAP), 11(3). **(Best Paper Award)**

## DEMONSTRATIONS / WORKSHOPS

- [D3] S. Zhao, Z. Schwemler, A. Fritz, A. Israr (2016) "*Stereo Haptics: Designing Haptic Interactions Using Audio Tools*", workshop at the ACM International Conference on Tangible, Embedded and Embodied Interaction (TEI '16), Eindhoven, Netherlands.
- [D2] A. Israr, S. Zhao, K. McIntosh, J. Kang, Z. Schwemler, E. Brockmeyer, M. Baskinger, M. Mahler (2015) "*Po2: Augmented Haptics for Interactive Gameplay*", demonstrated at SIGGRAPH 2015 Emerging Technology, LA

- [D1] S. Zhao, O. Schneider, R. Klatzky, J. Lehman, & A. Israr. (2014) *“FeelCraft: Crafting Tactile Experiences for Media using a Feel Effect Library”*, demonstrated at UIST 2014, Honolulu, Hawaii.

## PATENTS

- J Chen, F WY Lau, A Israr, V P Chakkabala, R Turcott, S Zhao, F Abnoui. *“Machine communication system using haptic symbol set”*, US Patent 10,854,108 B2, issued Dec. 01 2020.
- A Israr, A A Fritz, Z T Schwemler, S Zhao. *“Haptic Effect Generation System”*, US Patent 01,801,659,25A1, issued May 21 2019.
- A Israr, R Klatzky, S Zhao, JF Lehman, O Schneider. *“Customized Haptic Effects”*, US Patent 20,160,085,303,2016, issued Mar. 24 2016.

## INVITED TALKS

- Stereo Haptics in Augmented and Virtual Reality** *Jan. 2017*  
Hacking the Holodeck, MIT, Cambridge, MA
- Stereo Haptics: Designing Haptic Interactions Using Audio Tools** *Feb. 2016*  
Communication & Multimedia Design, Avans Hogeschool, Breda, Netherlands

## SELECTED PRESS COVERAGE

- CNBC.** Facebook researchers built a device that turns sounds into vibrations on your skin. *Apr. 2018*
- MIT Technology Review.** Getting e-mail on your skin is actually a thing now, thanks to Facebook. *Apr. 2018*

## AWARDS AND HONORS

- Bose Design Challenge Winner** An Audio Augmented Reality Medical Assistant for Healthcare Professionals 2018
- Best Paper Award** ACM Symposium on Applied Perception 2014
- Psi Chi**, International Honor Society in Psychology
- The Phi Beta Kappa Honor Society**
- Carnegie Mellon Senior Leadership Recognition Award** 2014

## TEACHING EXPERIENCE

- 05-413/813 Human Factors** *Fall 2017*  
*Teaching Assistant*, Carnegie Mellon University
- 05-431/631 Programming User Interfaces** *Fall 2016*  
*Teaching Assistant*, Carnegie Mellon University
- 85-440 Studies in Chinese Literature & Culture** *Fall 2011*  
*Writing Assistant*, Carnegie Mellon University

## ACADEMIC SERVICE

### REVIEWER

CHI 21, CSCW 20, World Haptics Conference 19, UIST 19, World Haptics Conference 18, UIST 17, World Haptics Conference 17, CHI 15-17, IJHCS 16, Augmented Human 16, HAPTICS 16, World Haptics Conference 15

## REFERENCES

**Robert E. Kraut** *Herbert A. Simon Professor Emeritus of Human-Computer Interaction at Carnegie Mellon University*

**Jason I. Hong** *Professor at Human Computer Interaction Institute, Carnegie Mellon University*

**Roberta L. Klatzky** *Charles J. Queenan Jr. Professor of Psychology at Carnegie Mellon University*

**Daniel P. Siewiorek** *Buhl University Professor of Electrical and Computer Engineering and Computer Science at Carnegie Mellon University*