

Xiaoyi Zhang

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Employment

2018 - Now **APPLE** Seattle, WA
Senior Researcher
Managers - Jeffrey Bigham, Jeffrey Nichols
Research Interests - Accessibility, Machine Learning

Education

2014 - 2018 **Ph.D.** in Computer Science University of Washington, Seattle
Advisor - James Fogarty
Committee - Leah Findlater, Jennifer Mankoff, Meredith Morris, Jacob Wobbrock
Research Interests - HCI, Accessibility, Health, Personal Informatics, Applied AI

2011 - 2014 **Bachelor** in Computer Science University of California, Los Angeles
Advisor - Majid Sarrafzadeh

Publication

Conference **Towards Complete Icon Labeling in Mobile Applications**
J. Chen, A. Swearngin, J. Wu, T. Barik, J. Nichols, X. Zhang
CHI 2022 • [PAPER](#)

Understanding Screen Relationships from Screenshots of Smartphone Applications
S. Feiz, J. Wu, X. Zhang, S. Swearngin, T. Barik, J. Nichols
IUI 2022 • [PAPER](#)

Screen Recognition: Creating Accessibility Metadata for Mobile Applications from Pixels
X. Zhang, L. de Greef, A. Swearngin, S. White, K. Murray, L. Yu, Q. Shan, J. Nichols, J. Wu, C. Fleizach, A. Everitt, J. P. Bigham
CHI 2021 (Best Paper) • [VIDEO](#) • [PAPER](#)

When Can Accessibility Help?: An Exploration of Accessibility Feature Recommendation on Mobile Devices
J. Wu, G. Reyes, S. White, X. Zhang, J. P. Bigham
W4A 2021 (Best Paper) • [PAPER](#)

Screen Parsing: Towards Reverse Engineering of UI Models from Screenshots
J. Wu, X. Zhang, J. P. Bigham, J. Nichols
UIST 2021 • [PAPER](#)

Robust Annotation of Mobile Application Interfaces in Methods for Accessibility Repair
X. Zhang, A. Ross, J. Fogarty
UIST 2018 • [VIDEO](#) • [PAPER](#)

Interactiles: 3D Printed Tactile Interfaces on Phone to Enhance Mobile Accessibility

X. Zhang, T. Tran, Y. Sun, I. Culhane, J. Fogarty, J. Mankoff

ASSETS 2018 • [VIDEO](#) • [PAPER](#)

Examining Image-Based Button Labeling for Accessibility in Apps through Large-Scale Analysis

A. Ross, X. Zhang, J. Fogarty, J. O. Wobbrock

ASSETS 2018 (Best Paper Nominee) • [PAPER](#)

APPINITE: A Multi-Modal Interface for Specifying Data Descriptions in Programming by Demonstration Using Verbal Instructions

T. Li, I. Labutov, X. Li, X. Zhang, W. Shi, W. Ding, T. Mitchell and B. A. Myers

VL/HCC 2018 • [VIDEO](#) • [PAPER](#)

Epidemiology as a Framework for Large-Scale Mobile Application Accessibility Assessment

A. Ross, X. Zhang, J. Fogarty, J. O. Wobbrock

ASSETS 2017 (Best Paper Nominee) • [PAPER](#)

Interaction Proxies for Runtime Repair and Enhancement of Mobile Application Accessibility

X. Zhang, A. Ross, A. Caspi, J. Fogarty, J. O. Wobbrock

CHI 2017 • [VIDEO](#) • [PAPER](#)

Smartphone-Based Eye Gesture Communication for People with Motor Disabilities

X. Zhang, H. Kulkarni, M. R. Morris

CHI 2017 • [VIDEO](#) • [PAPER](#)

Examining Unlock Journaling with Diaries and Reminders for In Situ Self-Report in Health and Wellness

X. Zhang, L. Pina, J. Fogarty

CHI 2016 • [VIDEO](#) • [PAPER](#)

Leveraging Dual-Observable Input for Fine-Grained Thumb Interaction Using Forearm EMG

D. Huang, X. Zhang, S. Saponas, J. Fogarty, S. Gollakota

UIST 2015 • [VIDEO](#) • [PAPER](#)

See UV on Your Skin: An Ultraviolet Sensing and Visualization System

X. Zhang, W. Xu, M-C. Huang, F. Ren, N. Amini

BodyNets 2013

Proper Running Posture Guide: A Wearable Biomechanics Capture System

X. Zhang, M-C. Huang, F. Ren, W. Xu, N. Guan, W. Yi

BodyNets 2013

Journal

An Epidemiology-Inspired Large-scale Analysis of Android App Accessibility

A. Ross, X. Zhang, J. Fogarty, J. O. Wobbrock

ACM Transactions on Accessible Computing (TACCESS) 2020

Beacon: Designing a Portable Device for Self-Administering a Measure of Critical Flicker Frequency

R. Karkar, R. Kocielnik, X. Zhang, J. Fogarty, G N. Ioannou, S A. Munson, J. Zia

IMWUT (UbiComp) 2018

FridgeNet: A Nutrition and Social Activity Promotion Platform for Aging Population

Y. Lee, M-C Huang, X. Zhang, W. Xu

Intelligent Systems, IEEE 30 (4), 2015

BreathSens: A Continuous On-Bed Respiratory Monitoring System With Torso Localization Using an Unobtrusive Pressure Sensing Array

J. Liu, M-C Huang, W. Xu, X. Zhang, L. Stevens, N. Alshurafa, M. Sarrafzadeh

Biomedical and Health Informatics, IEEE Journal of 19 (5), 2014

Using Pressure Map Sequences for Recognition of On Bed Rehabilitation Exercises

M-C. Huang, J. Liu, W. Xu, N. Alshurafa, X. Zhang, M. Sarrafzadeh

Biomedical and Health Informatics, IEEE Journal of 18 (2), 2014

Book Chapter **Tangible Interfaces**

M. Baldwin, R. Khurana, D. Mclsaac, Y. Sun, T. Tran, X. Zhang, J. Fogarty, G. Hayes, J. Mankoff

Web Accessibility, 2019

Patent **ON-THE-FLY CALIBRATION FOR IMPROVED ON-DEVICE EYE TRACKING [\(Detail\)](#)**

PIXEL-BASED OPTIMIZATION FOR A USER INTERFACE [\(Detail\)](#)

METHODS AND SYSTEMS FOR SELF-ADMINISTERED MEASUREMENT OF CRITICAL FLICKER FREQUENCY (CFF) [\(Detail\)](#)

AUTOMATED E-TRAN APPLICATION [\(Detail\)](#)

USER INTERFACE CONTROL USING GAZE TRACKING [\(Detail\)](#)

Internship

2017	MICROSOFT RESEARCH <i>Research Intern in Enable Team</i> Released SwipeSpeak, a communication app for people with ALS (iOS Store / Github).	Redmond, WA
2016	MICROSOFT RESEARCH <i>Research Intern in Enable Team</i> Built a low-cost eye gesture recognition system on phone powered by computer vision (patent pending).	Redmond, WA
2015	GOOGLE RESEARCH <i>Research Intern in Machine Intelligence group</i> Developed notebook presentation modes in coLaboratory (Collaborative iPython Notebook).	Mountain View, CA
2013	GOOGLE RESEARCH <i>Research Intern in Computer Vision & HCI group</i> Built patented non-rigid face features detection, pose & gaze tracking, used by 3 Google teams.	Mountain View, CA
2012	APPLE <i>Software Engineering Intern in iCloud</i> Implemented Contacts web app, improved the UX of iCloud web apps and fixed 47 bugs.	Cupertino, CA

Media Coverage

- 12/2020 **iPhones Can Now Automatically Recognize and Label Buttons and UI Features for Blind Users**
TechCrunch. <https://tcrn.ch/36zuVwA>
Reported our Screen Recognition feature in iOS 14.
- 02/2017 **Microsoft App Helps People with ALS Speak Using Just Their Eyes**
Newsweek, Editor's Pick. <https://www.newscientist.com/article/2121579>
Reported by [Newsweek](#) / [The Telegraph](#) / [New Scientist](#) / [BGR](#) / [Business Standard](#) and 50+ medias.