AMANDA SWEARNGIN

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EDUCATION

University of Washington (Dec. 2019)
MS & Ph.D., Computer Science & Eng.
Area: HCI, Software Engineering
Advisors: Amy Ko, James Fogarty

University of Nebraska-Lincoln (2012)
MS, Computer Science
Area: HCI, Software Engineering
Advisor: Myra Cohen

University of Nebraska-Lincoln (2010)
BS, Computer Science

SELECTED RESEARCH EXPERIENCE

Apple Inc. – **Senior Research Scientist** **May 2020 - Present**
- Trained production models and developed grouping heuristics for Screen Recognition, the first on-device ML model to recognize and announce iOS app UI for VoiceOver, benefiting 20M+ blind users.
- Collected large-scale dataset (6k apps, 750k screenss) for screen similarity modeling and trained production models used by app review to audit millions of app submissions.
- Developed a system to report accessibility issues for mobile apps, used for internal testing for 4+ prominent Apple apps, and described in publication.
- Led the release of an Xcode feature for multi-screen auditing in Accessibility Inspector, including the redesign and implementation of an improved HTML report.
- Published 10+ academic papers in collaboration with the UI & Code Understanding team and 6+ interns.

University of Washington – **Graduate Research Assistant** **Sept. 2015 - Present**
- Designed and developed 4 novel interfaces applying constraint solving, data-driven design, and machine learning to aid UI/UX designers in their use of examples and alternatives and in conducting usability evaluations within interactive design tools.
- Conducted quantitative experiments with 40 UX designers, and qualitative interviews with over 100 UX designers.

Microsoft Research – **Research Intern** **Summer 2019**
- Developed and deployed 70 participant company-wide survey on information capture on mobile devices.
- Worked with 2 product teams to develop a cross-device app for capturing document resources, and deployed to 12 participants' mobile phones.

Google Research – **Research Intern, Student Researcher** **Summer 2018 - Spring 2019**
- Developed crowdsourcing interfaces for tappability and target selection tasks, and deployed and collected 20k and 80k labels of mobile and web interface tappability, respectively, and over 40k labels of web target selection to predict user time to find and click on an element.
- Built a deep neural network model (Tensorflow) to automatically predict the tappability of mobile interfaces to help designers evaluate tappability of their interfaces without needing to collect any data.

Adobe Research – **Research Intern** **Fall 2016, Summer 2017**
- Designed and developed *Rewire*, an interactive system to aid designers in leveraging example screenshots by inferring vectorized design documents with editable shape and style properties.
- Quantitatively evaluated *Rewire* with 16 UI designers, showing that it significantly improves the efficiency of designers in adapting screenshots, and gained design insights through qualitative interviews.

SELECTED INDUSTRY EXPERIENCE

Microsoft Corporation – **Software Development Engineer II, SDET** **July 2012 - Sept 2015**
- Designed, developed, and tested web client framework features for Dynamics AX, and was the primary engineer for client layout and UI patterns.
- Developed visual regression testing framework to validate the product across browsers and environments, and deployed it into the build system.

SKILLS

Coding: Swift, JavaScript/TypeScript, HTML/CSS, Python, C/C++, Java, C#/.Net; **Frameworks**: React, NodeJS, Flask, Django, OpenCV; **Data Science/ML**: Tensorflow, Pytorch, LLMs and fine-tuning, Model productionization; **User Research**: Experimental Design, Quantitative & Qualitative Evaluations and Interviews, Crowdsourced Online Experiments;

SELECTED PUBLICATIONS

Towards Automated Accessibility Report Generation for Mobile Apps.
Amanda Swearngin, Jason Wu, Xiaoyi Zhang, Esteban Gomez et al.. ACM Transactions on Computer-Human Interaction (TOCHI) 2024.

Screen Recognition: Creating Accessibility Metadata for Mobile Applications from Pixels.
Xiaoyi Zhang, Lilian de Greef, Amanda Swearngin et al.. ACM Human Factors in Computing Systems (CHI) 2021. ★ Best Paper

Scraps: Enabling Contextual Mobile Capture, Contextualization, and Use of Document Resources.
Amanda Swearngin, Shamsi Iqbal et al.. ACM Human Factors in Computing Systems (CHI) 2021. ★ Honorable Mention

Scout: Rapid Exploration of Interface Layout Alternatives through High-Level Design Constraints
Amanda Swearngin et al. ACM Human Factors in Computing Systems (CHI) 2020.

Modeling Mobile Interface Tappability Using Crowdsourcing and Deep Learning
Amanda Swearngin, Yang Li. ACM Human Factors in Computing Systems (CHI) 2019. ★ Google Research Collaboration

Rewire: Interface Design Assistance from Examples
Amanda Swearngin et al. ACM Human Factors in Computing Systems (CHI) 2018. ★ Adobe Research Collaboration

Easing the Generation of Predictive Human Performance Models from Legacy Systems
Amanda Swearngin et al. ACM Human Factors in Computing Systems (CHI) 2012. ★ IBM Research Collaboration