AMANDA SWEARNGIN

Computer Science & Engineering, University of Washington, Seattle, WA, 98125

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EDUCATION

University of Washington *Sept. 2015 - Dec. 2019 (Expected)*
Ph.D. in Computer Science

University of Nebraska - Lincoln *May 2012*
Master of Science in Computer Science
GPA: 3.91

University of Nebraska - Lincoln *May 2010*
Bachelor of Science in Computer Science
GPA: 3.62
Major GPA: 3.76

ACADEMIC AWARDS & ACHIEVEMENTS

National Science Foundation Graduate Research Fellowship – 2016

Google Anita Borg Memorial Scholarship Finalist (One of 60 finalists out of 1200 applicants) – 2011

CRA-W Grad Cohort Participant – 2011, 2016

Grace Hopper Celebration of Women in Computing Scholarship Recipient – 2010

UCARE - Undergraduate Creative Activities and Research Experience Project Grant – 2009 - 2010

REFEREED CONFERENCE PUBLICATIONS

Amanda Swearngin, Yang Li. *TapShoe: Modeling Mobile Interface Tappability Using Crowdsourcing and Deep Learning*, SIGCHI Conference on Human Factors in Computing Systems (CHI), 2019., (acceptance rate: 23.8%).

Amanda Swearngin, Wilmot Li, Mira Dontcheva, Joel Brandt, Morgan Dixon, Amy J. Ko. *Rewire: Interface Design Assistance from Examples.* SIGCHI Conference on Human Factors in Computing Systems (CHI), 2018.

Amanda Swearngin, Amy J. Ko, James Fogarty. *Genie: Input Retargeting on the Web through Command Reverse Engineering.* SIGCHI Conference on Human Factors in Computing Systems (CHI), 2017. (acceptance rate: 25%).

Amanda Swearngin, Myra B. Cohen, Bonnie E. John, Rachel K.E. Bellamy. *Human Performance Regression Testing.* Int'l Conference on Software Engineering (ICSE), 2013. (acceptance rate: 18.5%), with **IBM Research**.

Amanda Swearngin, Myra B. Cohen, Bonnie E. John, Rachel K.E. Bellamy. *Easing the Generation of Predictive Human Performance Models from Legacy Systems.* Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI), pages 2489 - 2498, 2012. (acceptance rate: 23%), with **IBM Research**.

Sandeep Kaur Kuttal, Anita Sarma, **Amanda Swearngin**, Gregg Rothermel. *Versioning for Mashups — An Exploratory Study.* International Symposium on End User Development (IS-EUD), pages 25 - 41, 2011. (acceptance rate: 27%)

Amanda Swearngin, Berthe Y. Choueiry, Eugene C. Freuder. *A Reformulation Strategy for Multi-Dimensional CSPs: The Case Study of the SET Game.* Symposium on Abstraction, Reformulation, and Approximation (SARA), pages 107 - 116, 2011.

DEMOS

Amanda Swearngin, Andrew J. Ko, James Fogarty. *Scout: Mixed-Initiative Exploration of Design Variations through High-Level Design Constraints*, ACM User Interface Software and Technology Symposium (UIST), 2018.

RESEARCH EXPERIENCE

Microsoft Research June 2019 - September 2019
Research Intern with Shamsi Iqbal *Redmond, WA*

Designing and building a cross-application system to enable mobile capture and integration of resources during document creation, while collaborating with multiple product teams to make this experience a reality.

Google Research June 2018 - Sept. 2018, Nov. 2018 - Present
Research Intern and Student Researcher with Yang Li *Mountain View, CA*

· Crowdsourced a dataset of over 20k labels, and constructed a deep neural network model (Tensorflow) to automatically predict and analyze tappability in mobile interfaces (See Conference Publications).
· Built a web application to showcase the capabilities of the model as a design analytics tool.
· Interviewed 15+ designers to gather project requirements and gather qualitative feedback on the tool.

Adobe Research, Creative Technologies Lab Sept. 2016 - Dec. 2016, June 2017 - Sept. 2017
Research Intern with Mira Dontcheva, Wilmot Li, Joel Brandt, and Morgan Dixon *Seattle, WA*

· Researched, designed, and prototyped a system using Computer Vision and Machine Learning to reverse engineer and create vectorized wireframes and design mockups from screenshots of user interfaces (See Conference Publications).
· Designed, planned, and conducted qualitative and quantitative user study of the system with 16 UX designers.

University of Washington September 2015 - Present
Graduate Research Assistant with Amy Ko and James Fogarty *Seattle, WA*

· Built *Scout*, a system to support rapid exploration of interface design alternatives using program synthesis and constraint solving techniques, and conducted qualitative interviews and a lab study with 18 user interface designers (See Demos, Full submission in progress).
· Built *Rewire*, in collaboration with Adobe Research, which uses computer vision and machine learning to reverse engineer and create vectorized wireframes and design mockups from screenshots of user interfaces, and conducted an evaluation with 16 user interface designers (See Conference Publications).
· Built *Genie*, a framework that uses program analysis methods (static and dynamic) to reverse engineer, describe, and enable re-targeting of inputs to alternate modalities (See Conference Publications).
· Built *EvoWeb*, a system and interactive web interface to explore user interface changes that have occurred between consecutive versions of a web interface (Not yet published).

University of Nebraska - Lincoln January 2010 - May 2012
Research Assistant with Dr. Myra Cohen *Lincoln, NE*

· Developed *CogTool-Helper*, which uses automatic UI-model extraction and test case generation to automatically create storyboards and models for CogTool, a tool for predictive human performance modeling of user interfaces (See Conference Publications).
· Researched Combinatorial Interaction Testing (CIT) techniques and built interactive CIT web tutorials.

University of Nebraska - Lincoln January 2010 - May 2010
Undergraduate Research Assistant *Lincoln, NE*

· Assisted with research on Combinatorial Interaction Testing (CIT) techniques and developed several educational tutorials for the CIT web portal.

Holland Computing Center Summer 2008 - Spring 2010
Undergraduate Research Assistant with Dr. David Swanson *Lincoln, NE*

· Completed UCARE (Undergraduate Creative Activities and Research Experience) project designing and implementing an interactive web portal for viewing real-time computing statistics.

INDUSTRY EXPERIENCE

Microsoft Corporation July 2012 - September 2015
Software Development Engineer II, SDET *Fargo, ND*

· Designed, developed, and tested features for a new web client for Dynamics AX, Microsoft's new cloud-based ERP solution, and was the primary developer for client layout and UX patterns.
· Developed visual regression testing framework for validating the product across multiple browsers and environments, and integrated it into the build system.
· Was selected by team lead to mentor and onboard 3 new team members.

Cerner Corporation Summer 2010
Software Engineering Intern *Kansas City, MO*

· Conducted performance analyses and implemented C++ performance improvements that were put into production in Cerner's core application (PowerChart), and conducted static analysis runs to improve code quality.

Cerner Corporation Summer 2009
Software Engineering Intern *Kansas City, MO*

· Designed UI and built an interactive patient summary web app for the iPhone using JavaScript, CSS, and HTML.
· Implemented automatic script auditing framework for patient information retrieval in Cerner's SQL-like language.

PRESENTATIONS

Scout: Mixed-Initiative Exploration of Design Variations through High-Level Design Constraints, UW CSE Affiliates Research Day, Nov. 2018

Reverse Engineering User Interface Structure to Enable Access and Design Reuse, Human-Computer Interaction Seminar, Berkeley Institute of Design, Sept. 2018.

Scout: Mixed-Initiative Exploration of Design Variations through High-Level Design Constraints, Pacific Northwest Programming Languages Workshop, May 2018.

An Update on COMET (Community Event-based Testing), Workshop presentation at TESTBEDS, co-located with ICST (International Conference on Software Testing, Verification, and Validation), March 2011.

SERVICE

Paper Reviewing

- Engineering Interactive Computing Systems (EICS) PACM - 1 Paper - 2018
- Transactions on Software Engineering (TSE)- 1 Paper - 2018
- Conference on Human Factors in Computing Systems (CHI) - 2 Papers, 2 Extended Abstracts - 2019
- User Interface Software and Technology (UIST) - 2 Papers - 2019
- Graphics Interface - 1 Paper - 2019
- Creativity and Cognition - 2 Posters - 2019

PATENTS

User Interface Creation from Screenshots, Morgan Dixon, **Amanda Swearngin**, Lubomira Dontcheva, Joel Brandt, US Patent App. No. 20180349730, Published Dec. 6, 2018.

Linking graphical user interface testing tools and human performance modeling to enable usability assessment, Rachel K. E. Bellamy, Myra B. Cohen, Bonnie E. John, Padmanabhan Santhanam, **Amanda Swearngin**, US Patent No. 8,903,691, Dec. 2014

TEACHING

Teaching Assistant, UW Computer Science & Engineering, Human-Computer Interaction, Fall 2019

Teaching Assistant, UW MHCID Program, User Interface Software & Technology, Winter 2019.

Tutor, UW Computer Science & Engineering – Discrete Math, Software Design & Implementation, 2015-2016

RECENT LEADERSHIP AND VOLUNTEER ACTIVITIES

Prospective Student Committee – UW Computer Science & Engineering - 2016 - 2017

Volunteer – ChickTech Seattle, TEALS Puget Sound CS Fair, UW Graduate Women Organization – 2015 - 2016

Mentor – ChickTech Seattle, UNL Girl Empowerment and Mentoring for Computing Project – 2009, 2015 - 2016

Graduate Representative – UNL CS Curriculum Committee, Graduate Student Association – 2010 - 2012