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Alannah Oleson

Ph.D. Candidate

I study educational interventions to support critical and ethical technology design, with a particular focus on countering design bias and marginalization.

Education

2018- **University of Washington**, Seattle, WA, USA
Ph.D. in Information Science
Advisor: Amy J. Ko

2021 **University of Washington**, Seattle, WA, USA
M.S. in Information Science
Advisor: Amy J. Ko
General Exam Title: *Toward Justice-Centered Software Design and Development*

2014-2018 **Oregon State University**, Corvallis, OR, USA
Honors B.S. in Computer Science
Advisor: Margaret Burnett
Thesis: *Pedagogical Content Knowledge for Teaching Inclusive Software Design*

Research Experience

2018- **UW Code & Cognition Lab**, *Graduate Research Assistant.*
Mentor: Amy J. Ko

2017-2018 **Adobe Research Creative Intelligence Lab**, *Procedural Imaging Group Intern.*
Mentors: Cynthia (Jingwan) Lu, Jose Echevarria, Radomir Mech
Designed, conducted formative user research for, implemented, and presented a proof-of-concept augmented reality (AR) guided selfie & portrait-taking system for mobile apps.

2014-2018 **OSU EUSES/Gender HCI Lab**, *Undergraduate Research Assistant.*
Mentor: Margaret Burnett
Researched and led projects on lowering barriers to end-user software engineering and gender-inclusive software interface design.

Awards & Honors

2022 **University of Washington Husky 100**
Awarded to 100 of UW's 60,000 students who make the most of their time at UW
2018 **National Science Foundation (NSF) Graduate Research Fellowship** ($138,000 over 3 yrs)
2018 **Computing Research Association (CRA) Outstanding Undergraduate Researcher, Finalist**
2017 **Adobe Research Women-in-Technology Scholarship** ($10,000)
2015, 2016 **OSU Drucilla Shepard Smith Academic Excellence Awards**

Invited Talks

2021 **International Conference on Software Engineering (ICSE)**, *Panel: Can Researchers Enhance Diversity and Inclusion?* Recording: https://youtu.be/6LROK9Zqiks
2018 **OSU Celebrating Undergraduate Excellence (CUE)**, *Research Symposium Welcome Address.*

Students Supervised

I have mentored 9 students (7 undergraduate, 2 high school), including at least four women, one non-binary person, five People of Color, one from a rural community, and three from economically disadvantaged backgrounds. Four have co-authored academic papers with me. At least three have gone on to pursue graduate education or industry research positions.

Teaching

Instructor

Design Methods, UW INFO 360. Sp '20
Adapted course materials for remote learning equity; Created an original set of assignments to help students recognize and respond to exclusionary design biases.

Teaching Assistant

Cooperative Software Development, UW INFO 442. Fa '20
Helped adapt course content to equitable remote instruction formats, focusing on needs of the most disadvantaged student groups and implementing structures for instructor and peer support.
Design Methods, UW INFO 360. Wi '19
Created assessment questions to determine gaps in students' understandings and adapt instruction accordingly; Prepared and delivered lesson on interface evaluation methods.

Service

Chair

UW iSchool Doctoral Student Association (DSA) (2021-22)
Organizing and presiding at DSA meetings and town halls; Leading DSA outreach at new student orientation; Advocating for student perspectives to faculty, staff, and administrators.

Officer

Secretary, UW iSchool Doctoral Student Association (2020-21)
Organized and disseminated information internally to doctoral students, including meeting minutes; oversaw internal DSA officer elections.
Communications & Outreach, UW iSchool Doctoral Student Association (2019-20)
Administration of internal & external communications: mailing lists, social media accounts, reports on DSA activity, other outreach channels as requested.

Reviewer

ACM CHI (2019, 20, 21, 22), **ACM CSCW** (2020, 21), **Int'l Journal of Child-Computer Interaction** (2019), **ACM EduCHI Symposium** (2021, 22)

Student Volunteer

ACM CHI: Conference on Human Factors in Computing Systems (2019, 20), **ACM SIGCSE**: Technical Symposium on Computer Science Education (2019)
★ *CHI 2019: Received internal SV award "for going above and beyond" typical SV duties to ensure conference participants' access needs were properly met.*

Student Coordinator

UW DUB Seminar (2019-20)
DUB (Design, Use, Build) is an interdisciplinary community at the UW focused on HCI and Design running weekly invited talks with internal and external speakers.
UW Information School PhD Retreat (2019)
Co-organized annual PhD student retreat to welcome incoming cohort and strengthen ties between members of senior cohorts, fostering stronger interdepartmental community.

Peer Mentor

OSU STEM Leaders Program (2015-2018)
Helped 5 freshmen from underrepresented backgrounds in STEM transition to and succeed in new college environments as they completed original research projects with faculty mentors.

Peer-Reviewed Publications

My publications have been cited ≈325 times, and I have an h-index of 8. (Google Scholar, March 2022)

Surfacing Equity Issues in Large Computing Courses with Peer-Ranked, Demographically-Labeled Student Feedback
B. Xie, **A. Oleson**, J. Everson, A. J. Ko (2022)
PACMHCI: Proceedings of the ACM on Human-Computer Interaction (presented at ACM CSCW)
Developed and evaluated tool that contextualizes student feedback for teaching teams to identify equity issues.

On the Role of Design in K-12 Computing Education
A. Oleson, B. Wortzman, A. J. Ko (2021)
ACM TOCE: Transactions on Computing Education
Disentangled the role of design in K-12 CS education, finding that design ideas are pervasive in curricula and standards, but conflate program space (disciplinary) and problem space (nondisciplinary) design, masking potential challenges to teaching and learning design concepts.

Computing Students' Learning Difficulties in HCI Education
A. Oleson, M. Solomon, A. J. Ko (2020)
ACM CHI: Conference on Human Factors in Computing Systems
Investigated learning challenges in HCI design classes, finding that students can struggle to differentiate design from engineering, to interpret feedback and scope design problems, and to design for diversity, among others.

Scout: Rapid Exploration of Interface Layout Variations through High-Level Design Constraints.
A. Swearngin, C. Wang, **A. Oleson**, A. J. Ko, J. Fogarty (2020)
ACM CHI: Conference on Human Factors in Computing Systems
Designed, implemented, and evaluated Scout, a system to support designers' ideation of user interface layouts. Scout helped designers accelerate ideation and produce more diverse design ideas than designers using standard tools.

Semi-Automating (or not) a Socio-Technical Method for Socio-Technical Systems
C. J. Mendez, Z. Steine-Hanson, **A. Oleson**, A. Horvath, C. Hill, C. Hilderbrand, A. Sarma, M. Burnett. (2018)
IEEE VL/HCC: Symposium on Visual Languages & Human-Centric Computing
Through a field study and a controlled 92-participant study, discussed the benefits and drawbacks of semi-automating parts of the software interface inspection process from the perspective of cognitive load.

Pedagogical Content Knowledge for Teaching Inclusive Design
A. Oleson, C. J. Mendez, Z. Steine-Hanson, C. Hilderbrand, C. Perdriau, M. Burnett, A. J. Ko. (2018)
ACM ICER: International Computing Education Research Conference
Identified 11 pieces of pedagogical content knowledge for teaching inclusive design in higher education, including strategies for anticipating and addressing resistance, scaffolding perspective-taking, and tailoring instruction to prior beliefs.

★ **Gender-Inclusiveness Personas vs. Stereotyping: Can We Have it Both Ways?**
C. G. Hill, M. Haag, **A. Oleson**, C. J. Mendez, N. Marsden, A. Sarma, M. Burnett. (2017)
ACM CHI: Conference on Human Factors in Computing Systems
★ **Best Paper Honorable Mention**
Using multiple profile pictures on one persona may expand product designers' consideration of multiple genders without harming persona engagement or advancing harmful gender stereotypes.

Toward Theory-Based End-User Software Engineering
M. Burnett, T. Kulesza, **A. Oleson**, S. Ernst, L. Beckwith, J. Cao, W. Jernigan, W. Grigoreanu (2017)
Chapter in *New Perspectives in End-User Development*, Springer International Publishing
Highlighted the need for stronger theoretical foundations in end-user software engineering (EUSE) and present examples of EUSE projects that successfully went beyond individual tools to produce general methods and principles.

General Principles for a Generalized Idea Garden
W. Jernigan, A. Horvath, M. Lee, M. Burnett, T. Cuilty, S. Kuttal, A. Peters, I. Kwan, F. Bahmani, A. J. Ko, C. J. Mendez, **A. Oleson** (2017)
Journal of Visual Languages & Computing
End-user programmers who are not necessarily interested in learning programming can benefit from a just-in-time help system called the Idea Garden, which is built on the presented generalized architecture.

GenderMag Experiences in the Field: The Whole, the Parts, and the Workload
C. G. Hill, S. Ernst, **A. Oleson**, A. Horvath, M. Burnett (2016)
IEEE VL/HCC: Symposium on Visual Languages & Human-Centric Computing
Software practitioners who use the GenderMag method to identify gender-inclusiveness issues in their software interfaces engage with the personas at a high rate, but may also detour and introduce recording errors during sessions.

Programming, Problem Solving, and Self-Awareness: Effects of Explicit Guidance
D. Loksa, A. J. Ko, W. Jernigan, **A. Oleson**, C. J. Mendez, M. Burnett (2016)
ACM CHI: Conference on Human Factors in Computing Systems
Teaching novice programmers explicit problem-solving strategies can positively impact their productivity, self-efficacy, independence, and growth mindset development.

Magazine Articles

It Is Time for More Critical CS Education
A. J. Ko, **A. Oleson**, N. Ryan, Y. Register, B. Xie, M. Tari, M. J. Davidson, S. Druga, D. Loksa (2020)
ACM CACM: Communications of the ACM
Position article calling for more critical lens to computer science education.

Workshops and Symposia

Toward the Development of HCI Pedagogical Content Knowledge.
A. Oleson, A. J. Ko (2020)
EduCHI Annual Symposium on HCI Education @ CHI'20
"Unsolved challenge" paper discussing the need for a robust body of HCI pedagogical content knowledge.

The GenderMag-Teach Project
M. Burnett, Z. Steine-Hanson, **A. Oleson** (2019)
EduCHI Annual Symposium on HCI Education @ CHI'19
Described how we established and developed an online community of practice for educators teaching gender-inclusive software interface design.

Gender Biases in Software for Problem-Solving
M. Burnett, A. Sarma, C. Mendez, **A. Oleson**, C. Hilderbrand, Z., A. J. Ko (2018)
Designing Technologies to Support Human Problem Solving @ VL/HCC'18
Position paper to call attention to how software can be biased against certain problem-solving styles, especially those favored by women, and how to address these issues.

Patents

Smart Guide to Capture Digital Images that Align with a Target Image Model
A. Oleson, R. Mech, J. Echevarria, C. Lu (2018)
Filed as US15/897,951; published as US20190253614A1 and US10574881B2
Describes an interface model for analyzing a mobile device's camera feed as a picture is being taken and guiding a user to achieve a higher-quality selfie or portrait in real time.