



## Alannah Oleson

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### RESEARCH INTERESTS

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My research lies in the intersection of human-computer interaction, justice-centered computing education, and interface design. I explore how we can best teach software practitioners to create technology that supports all kinds of users, not only those from socially and culturally dominant groups. My work emphasizes inclusive and equitable software design, centering needs and perspectives of users of marginalized genders, races/ethnicities, socioeconomic statuses, and other attributes of inclusion beyond traditional accessibility.

**Topics** human-computer interaction, computing education, design education, inclusive design, accessibility, design justice

### EDUCATION

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2018 – present

#### Ph.D. in Information Science

University of Washington, Seattle, WA, USA

Advisor: Amy J. Ko

2014 – 2018

#### Honors B.S. in Computer Science

Oregon State University, Corvallis, OR, USA

Advisor: Margaret M. Burnett

*Thesis: Pedagogical Content Knowledge for Teaching Inclusive Software Design*

### AWARDS

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2018 – present

National Science Foundation (NSF) Graduate Research Fellowship

2018

Computing Research Association (CRA) Outstanding Undergraduate Researcher, Finalist

2017

Adobe Research Women-in-Technology Scholarship

2015, 2016

Drucilla Shepard Smith Academic Award, Oregon State University

### PANELS & INVITED

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#### TALKS

October 2021

#### Teaching Science and Engineering for Social Justice

Submission: *Power in the Interface: Teaching critical software interface design*

2021 Meeting of the Society for the Social Studies of Science (4S)

Co-author: Levin Kim

June 2021

#### Panel: Can Researchers Enhance Diversity and Inclusion?

2021 International Conference on Software Engineering (ICSE)

Recording: <https://youtu.be/6LR0K9Zqiks>

## PUBLICATIONS

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### Peer-Reviewed Papers

- c9 [Alannah Oleson](#), Meron Solomon, Christopher Perdriau, and Amy J. Ko. **Teaching Inclusive Design Skills with the CIDER Assumption Elicitation Technique.** *Draft, in progress.*
- c8 Benjamin Xie, [Alannah Oleson](#), Jayne Everson, and Amy J. Ko. **Surfacing Equity Issues in Large Computing Courses with Peer-Ranked, Demographically-Labeled Student Feedback.** *Submitted to ACM CSCW, under review.*
- j2 [Alannah Oleson](#), Brett Wortzman, and Amy J. Ko. **On the Role of Design in K-12 Computing Education.** *ACM Transactions on Computing Education (TOCE)* 2021. 21, 1, Article 2, 34 pages.
- c7 [Alannah Oleson](#), Meron Solomon, and Amy J. Ko. **Computing Students' Learning Difficulties in HCI Education.** In *Proceedings of the 2020 ACM CHI Conference on Human Factors in Computing Systems (CHI'20)*. 1-14.
- c6 Amanda Swearngin, Chenglong Wang, [Alannah Oleson](#), Amy J. Ko, and James Fogarty. **Scout: Rapid Exploration of Interface Layout Variations through High-Level Design Constraints.** In *Proceedings of the 2020 ACM CHI Conference on Human Factors in Computing Systems (CHI'20)*. 1-13.
- c5 Christopher J. Mendez, Zoe Steine-Hanson, [Alannah Oleson](#), Amber Horvath, Charles Hill, Claudia Hilderbrand, Anita Sarma, and Margaret Burnett. **Semi-Automating (or not) a Socio-Technical Method for Socio-Technical Systems.** *2018 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, Lisbon, 2018, pp. 23-32.
- c4 [Alannah Oleson](#), Christopher J. Mendez, Zoe Steine-Hanson, Claudia Hilderbrand, Christopher Perdriau, Margaret Burnett, and Amy J. Ko. **Pedagogical Content Knowledge for Teaching Inclusive Design.** In *Proceedings of the 2018 ACM Conference on International Computing Education Research (ICER '18)*. 69-77.
- c3 Charles G. Hill, Maren Haag, [Alannah Oleson](#), Christopher J. Mendez, Nicola Marsden, Anita Sarma, and Margaret Burnett. **Gender-Inclusiveness Personas vs. Stereotyping: Can We Have it Both Ways?** In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems (CHI '17)*. 6658-6671.  
★ **Best Paper Honorable Mention**
- b1 Margaret Burnett, Todd Kulesza, [Alannah Oleson](#), Shannon Ernst, Laura Beckwith, Jill Cao, William Jernigan, and Valentina Grigoreanu. 2017. **Toward Theory-Based End-User Software Engineering.** Chapter in *New Perspectives in End-User Development*, Fabio Paternò and Volker Wulf (eds.). Springer International Publishing, Cham, 231–268.
- j1 William Jernigan, Amber Horvath, Michael Lee, Margaret Burnett, Taylor Cui, Sandeep Kuttal, Anicia Peters, Irwin Kwan, Faezeh Bahmani, Amy J. Ko, Christopher J. Mendez, and [Alannah Oleson](#). **General Principles for a Generalized Idea Garden.** 2017. *Journal of Visual Languages & Computing*, Volume 39, Pages 51-65.

- c2 Charles Hill, Shannon Ernst, [Alannah Oleson](#), Amber Horvath, and Margaret Burnett. **GenderMag Experiences in the Field: The Whole, the Parts, and the Workload.** 2016 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), Cambridge, 2016, pp. 199-207.
- c1 Dastyni Loksa, Amy J. Ko, Will Jernigan, [Alannah Oleson](#), Christopher J. Mendez, and Margaret Burnett. **Programming, Problem Solving, and Self-Awareness: Effects of Explicit Guidance.** In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). 1449-1461.

## Workshops & Symposia

- w3 [Alannah Oleson](#) and Amy J. Ko. **Toward the Development of HCI Pedagogical Content Knowledge.** Virtual Symposium at 2020 ACM CHI Conference on Human Factors in Computing Systems: 2nd Annual EduCHI Symposium on HCI Education.
- w2 Margaret Burnett, Zoe Steine-Hanson, and [Alannah Oleson](#). **The GenderMag-Teach Project.** Symposium at 2019 ACM CHI Conference on Human Factors in Computing Systems: EduCHI Global Perspectives on HCI Education.
- w1 Margaret Burnett, Anita Sarma, Christopher J. Mendez, [Alannah Oleson](#), Claudia Hilderbrand, Zoe Steine-Hanson, and Amy J. Ko. **Gender Biases in Software for Problem-Solving.** Workshop at 2018 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC): Designing Technologies to Support Human Problem Solving. Lisbon, 2018.

## Articles

- a1 Amy J. Ko, [Alannah Oleson](#), Neil Ryan, Yim Register, Benjamin Xie, Mina Tari, Matt Davidson, Stefania Druga, Dastyni Loksa, and Greg Nelson. **It's time for more critical CS education.** Communications of the ACM (CACM) Viewpoints. *To appear, November 2020.*

## Patents

- p1 [Alannah Oleson](#), Radomir Mech, Jose Echevarria, and Cynthia (Jingwan) Lu. **Smart Guide to Capture Digital Images that Align with a Target Image Model.** P7429-US 20030.152, US20190253614A1, US10574881B2.

## EXPERIENCE

*Sept. 2018 – present*

### Graduate Research Assistant, Code & Cognition Lab

University of Washington, Seattle, WA, USA

- Researching the role of design in computing education to promote creative, inclusive, & ethical software interface design practices and engage diverse populations in technical fields
- Current projects:
  - Creating and evaluating an activity to help computing students recognize and respond to exclusionary assumptions built into HCI artifacts [c9]
  - Exploring opportunities to integrate code-level inclusive design practices into software developers' programming workflows
- Past projects:
  - Defining two types of design (problem-space and program-space) present in K-12 computing curricula and activities [j2]
  - Understanding struggles computing students face when learning & applying basic software interface design concepts in HCI classes [c7]

June 2017 – Sept. 2017

## Procedural Imaging Group Intern, Creative Intelligence Lab

Adobe Research, San Jose, CA, USA

- Mentors: Cynthia (Jingwan) Lu, Jose Echevarria, Radomir Mech
- Designed and implemented interface for AR guided selfies camera app [p1]
- Designed and conducted user studies to inform interface design
- Developed proof-of-concept prototype iOS app (XCode IDE, Swift, Objective-C) and showcased demo at internal research exhibition

Dec. 2014 – June 2018

## Undergraduate Research Assistant

Oregon State University, Corvallis, OR, USA

- Advisor: Margaret Burnett
- Researched and led projects on end-user software engineering and gender-inclusive software interface design
- Project Lead: GenderMag-Teach [c4, w2]
- Other projects: GenderMag [c2-3, c5, b1, w1], The Idea Garden [c1, j1, b1]

## TEACHING

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Autumn 2020

### Cooperative Software Development (UW INFO 442)

Co-Instructor & Teaching Assistant

34 undergraduates

- In a flipped classroom setup, led discussions around key concepts of user-centered software development, using theories and tools from social psychology, computer-supported collaborative work, and software engineering
- Helped adapt course content to equitable remote instruction formats, focusing first on the needs of the most disadvantaged student groups and implementing actionable structures for instructor and peer support

Spring 2020

### Design Methods (UW INFO 360)

Instructor of Record

40 undergraduates, 1 undergraduate TA

- Created and adapted course materials to asynchronous, accessible online formats to support meaningful remote design learning
- Planned and led optional synchronous discussion sections to foster peer connections and combat remote learning isolation
- Deployed and longitudinally evaluated a theoretically grounded weekly assignment to help students develop inclusive HCI design skills [c9]

Winter 2019

### Design Methods (UW INFO 360)

Co-Instructor & Teaching Assistant

49 undergraduates

- Helped prepare and plan course content and topics to cover during instruction
- Prepared and delivered lesson on interface design evaluation methods
- Created questions to assess gaps in students' understandings of interface design concepts

## SERVICE

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### Invited Reviewer Venues

ACM CHI, ACM CSCW, Int'l Journal of Child-Computer Interaction (CCI), ACM EduCHI Symposium

### **Student Volunteer**

ACM CHI 2019, 2020 (selected but cancelled due to COVID-19)

- 2019: Nominated for internal SV award by session chair “for going above and beyond” typical SV duties

ACM SIGCSE Technical Symposium, 2019

### **2019 – 2020 DUB Student Seminar Coordinator**

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.

### **2018 – 2021 UW iSchool Doctoral Student Association**

Chair, 2021–2022

- Organizing and presiding at DSA meetings and town halls; Leading DSA outreach at new student orientation and workshops throughout the year; Advocating for student perspectives and needs to faculty, staff and administrators

Secretary, 2020–2021

- Organized and disseminated information internally to doctoral students, including meeting minutes; oversaw internal DSA officer elections

Communications & Outreach Coordinator, 2019–2020

- Administration of internal & external communications: mailing lists, social media accounts, reports on DSA activity, other outreach channels as requested

Retreat Committee Coordinator, 2018–2019

- Co-organized annual PhD student retreat to welcome incoming cohort and strengthen ties between members of senior cohorts

### **2015 – 2018 Peer Mentor, STEM Leaders Program**

Oregon State University, Corvallis, OR, USA

- Over three years, helped five freshmen from underrepresented backgrounds in STEM transition to and succeed in a college environment
- Supported students as they started, completed, and presented original research under the supervision of a faculty mentor