ALANNAH OLESON, PH.D.

Assistant Professor, Computer Science
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I pursue ethical, equitable, and liberatory technology designs by partnering with educators to explore novel strategies for teaching and learning critical HCI/UX skills within postsecondary computing education.

EDUCATION

2018-2023 **University of Washington**, Seattle, WA, USA
Ph.D. in Information Science
Dissertation: *Integrating Inclusive Design and Computing Education*
Advisor: Amy J. Ko

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

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

RESEARCH EXPERIENCE

Sept. 2024 **Assistant Professor**
Ritchie School of Engineering and Computer Science, University of Denver
Director of the TEACCUP Lab (Teaching Ethical Awareness, Critical Computing, and Understanding People)
Exploring novel integrations of critical design content into computing education contexts, such as inclusive data schemas, teaching ethical interface design, critical perspectives on tech design bias, etc.

2023-2024 **Postdoctoral Scholar & Co-Founder**
Center for Learning, Computing, and Imagination, University of Washington
Led an Action Research study with a community of computing educators on best practices for teaching and learning critical interface design skills within postsecondary computing courses.

2018-2023 **Graduate Research Assistant**
Code & Cognition Lab, University of Washington (Advisor: Amy J. Ko)
Led several research projects on justice-centered computing education and inclusive technology design education, including (though not limited to) a critical review of demographic data trends within computing education research and a freely-accessible digital book to help computing faculty integrate accessibility topics into their college-level computer science courses.

2017-2018 **Procedural Imaging Group Intern**
Adobe Research (Mentors: Cynthia Lu, José Echevarria, Radomir Mech)
Designed, conducted formative user research for, implemented, and patented a proof-of-concept augmented reality (AR) guided selfie and portrait-taking interface for mobile photography.

2014-2018 **Undergraduate Research Assistant**
EUSES / Gender HCI Lab, Oregon State University (Advisor: Margaret M. Burnett)
Supported and later led projects on lowering barriers to end-user software engineering through just-in-time help systems and gender-inclusive interface design methods for industry practitioners.

Funding & Grants

2025   **Evaluating a Pedagogical Resource for Teaching Accessible Computing**, U. Denver
PI: Alannah Oleson; Student: Muskan Fatima
Discovery PINS Student Signature Work Grant (advisor)
$1,500 for Spring 2025 project work

2018-2023   **Graduate Research Fellowship (GRFP),** National Science Foundation
$138,000 over 3 years

2017   **Women-in-Tech Scholar**, Adobe Research
$10,000 to support scholarship and research

Awards & Honors

2023   **Best Paper Award,** ACM ICER
2022   **Best Paper Award for Diversity & Inclusion Contribution**, ACM CSCW
2022   **University of Washington Husky 100**
Awarded annually to 100 of UW's 60,000 students who make exceptional contributions to research, teaching, mentorship, and service to the institution. Highest honor available for students.
2018   **Outstanding Undergraduate Researcher, Finalist,** Computing Research Association (CRA)
2017   **Best Paper Honorable Mention**, ACM CHI
2015, 2016   **Drucilla Shepard Smith Academic Excellence Award**, Oregon State University

Peer-Reviewed Publications

My publications have been cited over 900 times, and I have an h-index of 13. ([Google Scholar](), March 2025)

2025   (To appear) **The Wickedness of Translation: Intersections of Design and Translation in HCI Education**
A. Oleson, L. Taylor
EduCHI 2025 Annual Symposium on HCI Education
Explores the intersections of technology design and literary translation studies through a narrative dialogue, with the goal of developing actionable pedagogical insights for helping novices in both fields become more critical, reflective, and ethical practitioners.

(In draft) **Teaching Critical Interface Design: Challenges, Strategies, and Factors Influencing Success**
A. Oleson et al.
Through an Action Research Study with postsecondary computing educators, describes four learning trajectories along which instructors attempted to shift students' critical technology design thinking, detailing several challenges they experienced and strategies they tried along the way.

2024   **Factors Influencing the Social Help-Seeking Behavior of Introductory Computing Students in a Competitive University Environment**
A.K. Cohen, **A. Oleson**, A.J. Ko
ACM TOCE: Transactions on Computing Education
Explored how post-secondary CS students sought help on programming assignments, finding both class policies and sociocultural contexts were important in decisions to seek assistance from others.

2023   **Teaching Inclusive Design Skills with the CIDER Assumption Elicitation Technique**
A. Oleson, M. Solomon, C. Perdriau, A.J. Ko
ACM TOCHI: Transactions on Computer-Human Interaction
Contributed a theoretically grounded teaching method to help CS students identify design assumptions that exclude marginalized users and a case study finding lasting impact on their design approaches.

★ Best Paper Award

Funds of Knowledge Used by Adolescents of Color in Scaffolded Sensemaking around Algorithmic Fairness

J. Salac, **A. Oleson**, L. Armstrong, A. Le Meur, A.J. Ko

ACM ICER: International Computing Education Research Conference

Found that youth in a summer computing camp used a tiered human lens and then technological lens to reason through algorithmic fairness, often invoking facets of their identities and background knowledge.

2022 **A Decade of Demographics in Computing Education Research: A Critical Review of Trends in Collection, Reporting, and Use**

A. Oleson*, B. Xie*, J. Salac, J. Everson, F.M. Kivuva, A.J. Ko

ACM ICER: International Computing Education Research Conference

Found that most computing education research studied adults, left out key details of data gathering, and often used imprecise aggregate terms to illustrate diversity that reified hegemonic identity norms.
* = co-first authors.

★ Best Paper Award for Diversity & Inclusion Contribution

Surfacing Equity Issues in Large Computing Courses with Peer-Ranked, Demographically-Labeled Student Feedback

B. Xie, **A. Oleson**, J. Everson, A.J. Ko

PACMHCI: Proceedings of the ACM on Human-Computer Interaction (presented at CSCW)

Developed and evaluated a tool that contextualizes student feedback on learning challenges with anonymized demographic data for teaching teams to identify systemic equity issues within their courses.

2021 **On the Role of Design in K-12 Computing Education**

A. Oleson, B. Wortzman, A.J. Ko

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.

2020 **Computing Students' Learning Difficulties in HCI Education**

A. Oleson, M. Solomon, A.J. Ko

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.

Scout: Rapid Exploration of Interface Layout Variations through High-Level Design Constraints

A. Swearngin, C. Wang, **A. Oleson**, A.J. Ko, J. Fogarty

ACM CHI: Conference on Human Factors in Computing Systems

Designed, implemented, and evaluated Scout, a system to support designers' ideation of interface layouts, which helped designers accelerate ideation and produce more diverse design ideas than standard tools.

2018 **Pedagogical Content Knowledge for Teaching Inclusive Design**

A. Oleson, C.J. Mendez, Z. Steine-Hanson, C. Hilderbrand, C. Perdriau, M.M. Burnett, A.J. Ko

ACM ICER: International Computing Education Research Conference

Identified 11 pieces of pedagogical content knowledge for teaching inclusive design in higher education computing courses, including strategies for anticipating and addressing learner resistance, scaffolding perspective-taking, and tailoring instruction to students' prior beliefs.

Semi-Automating (or not) a Socio-Technical Method for Socio-Technical Systems
C.J. Mendez, Z. Steine-Hanson, **A. Oleson**, A. Horvath, C.G. Hill, C. Hilderbrand, A. Sarma,
M.M. Burnett
IEEE VL/HCC: Symposium on Visual Languages and 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.

2017 ★ Best Paper Honorable Mention
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.M. Burnett
ACM CHI: Conference on Human Factors in Computing Systems
Found that 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.M. Burnett, T. Kulesza, **A. Oleson**, S. Ernst, L. Beckwith, J. Cao, W. Jernigan, W. Grigoreanu
Chapter in *New Perspectives in End-User Development*, Springer Int'l Publishing
Highlighted the need for stronger theoretical foundations in end-user software engineering and presented examples of projects that went beyond individual tools to produce general methods and principles.

General Principles for a Generalized Idea Garden
W. Jernigan, A. Horvath, M. Lee, M.M. Burnett, T. Cuilty, S. Kuttal, A. Peters, I. Kwan, F. Bahmani, A.J. Ko, C.J. Mendez, **A. Oleson**
Journal of Visual Languages and 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.

2016 **GenderMag Experiences in the Field: The Whole, the Parts, and the Workload**
C.G. Hill, S. Ernst, **A. Oleson**, A. Horvath, M.M. Burnett
IEEE VL/HCC: Symposium on Visual Languages and Human-Centric Computing
Software practitioners who use the GenderMag method to identify inclusiveness issues in their interfaces engage with 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.M. Burnett
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.

Articles (Refereed)

2020 **It Is Time for More Critical Computing Education**
A.J. Ko, **A. Oleson**, M. Kirdani-Ryan, Y. Register, B. Xie, M. Tari, M.J. Davidson, S. Druga, D. Loksa
ACM CACM: Communications of the ACM
Position article calling for the integration of more critical lenses into computer science education, such as the key ideas that computing has limits, data has limitations, and computer scientists hold responsibility for their creations and design decisions.

Workshops & Symposia

2023 **Software Developer Diversity and Inclusion Workshop**
Organizers: D. Ford, E. Murphy-Hill, M. Storey, R. Prikladnicki, Y. Wang
National Institute of Informatics (NII) Shonan Meeting
In the style of Dagstuhl seminars, this invited workshop brought together leading researchers doing diversity and inclusion work in software engineering to identify challenges, propose goals, and gather best practices to share with practitioners. Publication available at https://shonan.nii.ac.jp/seminars/194/

EduCHI 2023: 5th Annual Symposium on HCI Education
C. Gray, C.M. MacDonald, C. Lallemand, **A. Oleson**, A.R.L. Carter, O. St-Cyr, C. Pitt
EduCHI Annual Symposium on HCI Education @ CHI 2023
Proposal paper for the symposium, formatted like a conference with research talks and teaching demos.

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

2019 **The GenderMag-Teach Project**
M.M. Burnett, Z. Steine-Hanson, **A. Oleson**
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 in their HCI and computing courses.

2018 **Gender Biases in Software for Problem-Solving**
M.M. Burnett, A. Sarma, C. Mendez, **A. Oleson**, C. Hilderbrand, Z. Steine-Hanson, A.J. Ko
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 gender-inclusiveness issues.

Digital Books

These books are free, online, accessible, and responsive resources for the computing education community. They are not peer-reviewed in the traditional sense, but instead iteratively improved by feedback from community members in response to the rapidly evolving computing field.

2024 **Teaching Accessible Computing**
A. Oleson, A.J. Ko, R. Ladner
https://bookish.press/tac/
Offers foundational knowledge about disability and pedagogy to support CS faculty who want to teach about accessibility in their courses, but don't know where to start. The initial edition of this book contains perspectives from 21 domain experts on how to integrate accessibility into 14 CS courses (intro programming, graphics, data structures, etc.), with more chapters forthcoming in the next year.

2022 **Critically Conscious Computing: Methods for Secondary Education**
A.J. Ko, A. Beitlers, B. Wortzman, M. Davidson, **A. Oleson**, M. Kirdani-Ryan, S. Druga, J. Everson
https://criticallyconsciouscomputing.org/
A book for secondary educators who want to teach CS from a more critical lens, examining the discipline and its content knowledge from technical, sociotechnical, and sociopolitical stances.

    CS and Design (chapter in Critically Conscious Computing)
    Authors: A.J. Ko, **A. Oleson**
    https://criticallyconsciouscomputing.org/design
    Describes how design and computing intersect in educational contexts, including the differences between design and engineering mindsets, different pedagogical approaches, and a unit sketch for teaching CS as design-informed engineering.

Doctoral Consortia

2022 **CIDER: A Method to Teach Practical Critical Software Design Skills**
A. Oleson
SIGCSE DC @ ACM ICER Conference on International Computing Education Research
Position article calling for the integration of more critical lenses into computer science education, such as the key ideas that computing has limits, data has limitations, and computer scientists hold responsibility for their creations and design decisions.

2022 **Supporting Critical Software Design Decision-Making in HCI Education**
A. Oleson
DUB DC @ University of Washington
Describes past and proposed research on how to help computing students think more critically about the impacts of their design decisions so that they can create more usable, accessible, and inclusive software.

Patents

2018 **Smart Guide to Capture Digital Images that Align with a Target Image Model**
A. Oleson, R. Mech, J. Echevarria, C. Lu
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.

Invited Talks

2025 **Toward Critical, Ethical, Creative, and Reflective HCI Education Futures**
@ ATLAS Colloquium, University of Colorado - Boulder

2024 **Doing HCI Education Research in Your Own Classroom**
@ Pedagogy Workshop, EduCHI Annual Symposium on HCI Education

2021 **Panel: Can Researchers Enhance Diversity and Inclusion?**
@ International Conference on Software Engineering (ICSE)
Recording available at https://youtu.be/6LROK9Zqiks

2018 **Research Symposium Welcome Address**
@ Celebrating Undergraduate Excellence (CUE) Event, Oregon State University

Teaching Experience

ASSISTANT PROFESSOR
Human-Computer Interaction, DU COMP 3/4100 (Winter 2025)
Redesigned an introductory HCI/UX design course (elective for graduates & undergraduates) to integrate active learning and discussion activities in every class session, based on effective HCI education research. Students learn basic HCI principles and design methods through digital prototyping, then build collaboration skills through a final design team project to address a structural inequity around campus.

Introduction to Computer Science, DU COMP 1201 (Fall 2024)
Designed and implemented (in collaboration with colleagues) an introductory CS course (required for majors/minors, open to all) on algorithmic thinking, career readiness, and ethical perspectives on technology. Students engage in activities and discussions to build CS foundations and identities.

INSTRUCTOR OF RECORD
User-Centered Design Methods, UW INFO 360 (Spring 2020)
Adapted course materials to support more equitable participation during remote learning; Created original assignments to help students recognize and respond to exclusionary design biases.

TEACHING ASSISTANT	**Cooperative Software Development**, UW INFO 442 (Fall 2020) *Helped adapt course content to equitable remote instruction formats, focusing on needs of the most disadvantaged student groups first, and implementing structures for instructor and peer support.*
	User-Centered Design Methods, UW INFO 360 (Winter 2019) *Created formative assessment questions to determine gaps in students' understandings and adapt instruction accordingly; Prepared and delivered lesson on interface evaluation methods.*
GUEST INSTRUCTOR	**Computing Education Research Seminar**, UW CSE 599 (Winter 2024) *Led discussion on the idea of "CS For All" and how to equitably expand CS education access.*
	Design Methods, UW INFO 360 (Winter 2019) *Presented an overview of the principles of various empirical and analytical user interface evaluation methods and led a series of active learning activities for students to engage with each method.*

STUDENTS SUPERVISED

I have meaningfully mentored 21 students (4 grad, 14 undergrad, 2 high school), including several women, non-binary, and transgender people, many Students of Color, some international students, a few from rural areas, and several students from economically disadvantaged backgrounds, all with varied abilities and prior exposure to academia. Nine of these students co-authored academic papers with me. At least seven of the undergraduates and high schoolers chose to pursue graduate education after working with me.

SERVICE

ASSOCIATE EDITOR	**ACM Transactions on Computing Education** (2024-present) *Expertise areas: Human-computer interaction (HCI) education and computing design education research.*
PARTNER	**AccessComputing**, University of Denver (2024-present) *Acting as DU's liaison to the AccessComputing program to support participation and access for computing students with disabilities; Connecting DU faculty and staff to accessible computing resources.*
STEERING COMMITTEE	**EduCHI Symposium on HCI Education** (2023-present) *Providing oversight and guidance to the organizing committee during the transition to a standalone conference in 2024; Liaison to ACM TOCE journal and co-director for early-career researcher workshops.*
TECHNICAL PROGRAM CHAIR	**EduCHI Symposium on HCI Education** (2023, 2025) *Oversaw the paper review process for the symposium's research and teaching-related submissions and worked with program committee to make final acceptance decisions; Collaborated with the General Chairs to create and promote community-building workshops prior to the symposium.*
ORGANIZER	**HCI Pedagogy Workshop**, EduCHI Symposium (2024) *Planned and led the inaugural half-day workshop on HCI pedagogy and pedagogical research for doctoral students, postdocs, and 1st year faculty, which became a recurring event due to its success.*
REVIEWER	ACM **CHI** Conf. on Computer-Human Interaction; ACM **CSCW** Conf. on Computer-Supported Collaborative Work; ACM **TOCE** (Trans. on Computing Education); ACM **EduCHI** Conf. on HCI Education; ACM **TOSEM** (Trans. on Software Engineering Methodology); **Int'l Journal of Child-Computer Interaction**
MENTOR	**Trans/Queer in HCI Mentorship Program** (2022-2023) *Providing professional and personal support to students in the Human-Computer Interaction field who are part of the LGBTQIA2S+ community.*
CHAIR	**UW iSchool Doctoral Student Association** (2021-2022) *Organized and presided at DSA meetings and town halls; Led DSA outreach at new student orientation; Advocated for student perspectives to faculty, staff, and administrators.*

OFFICER	**Secretary**, UW iSchool Doctoral Student Association (2020-2021) *Organized and disseminated information internally to doctoral students, including meeting minutes; oversaw internal DSA officer elections.* **Communications & Outreach**, UW iSchool Doctoral Student Association (2019-2020) *Administration of internal \& external communications: mailing lists, social media accounts, reports on DSA activity, other outreach channels as requested.*
STUDENT VOLUNTEER	ACM **CHI** Conference (2019, 20, 22, 23), ACM **SIGCSE** Technical Symposium (2019) ★ *CHI 2019: Received internal SV award "for going above and beyond" typical SV duties to ensure conference participants' accessibility needs were properly met during paper sessions.*
STUDENT COORDINATOR	**UW DUB Seminar** (2019-2020) *DUB (Design, Use, Build) is an interdisciplinary community at the UW focused on HCI and Design which coordinates weekly invited talks with internal and external speakers.*
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.*