



Human Centered Innovation for Washington and the World

IMPACT REPORT: DEPARTMENT OF HUMAN CENTERED DESIGN & ENGINEERING



HUMAN CENTERED DESIGN & ENGINEERING
UNIVERSITY of WASHINGTON

Human-Centered Research for Washington and Beyond

“Academic research is a powerful driver of new knowledge, often with more depth and openness than what is typically found in industry. It sparks ideas that reach far beyond the lab and is fueled by curiosity, giving students and researchers the freedom to explore big questions that shape our world. Continued funding is essential to sustain this discovery and ensure knowledge is created for the public good.”
— JULIE KIENTZ, HCDE PROFESSOR & CHAIR



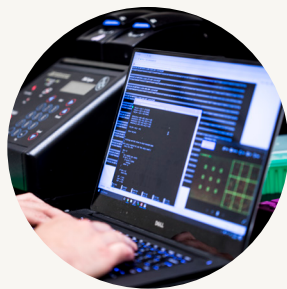
Transforming coastal communities with renewable marine energy

Shana Lee Hirsch, an assistant research professor in HCDE, is advancing the development of renewable marine energy through her leadership at the Pacific Marine Energy Center, a multi-university research consortium. Her work focuses on ensuring that offshore wind and other marine energy sources benefit coastal communities by creating jobs and supporting local economies. Through partnerships with Indigenous groups, fishing industries, and coastal residents, Hirsch's research promotes a community-centered approach to clean energy development. By studying international models and engaging directly with stakeholders, her team is helping shape a more sustainable future for US coastal regions.



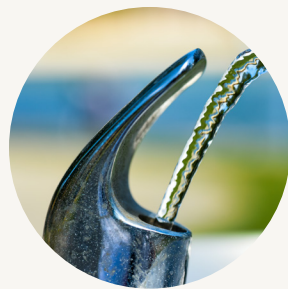
Improving mental healthcare with UW's ALACRITY Center

The UW Advanced Laboratories for Accelerating the Reach and Impact of Treatments for Youth and Adults with Mental Illness (ALACRITY) Center, co-directed by HCDE Professor Sean Munson, is expanding access to quality mental health care by redesigning behavioral interventions to be more effective and accessible to all Americans. The Center collaborates across disciplines to integrate these treatments into primary care clinics, schools, and other community health settings. ALACRITY has helped refine existing mental health treatments, identified key design challenges, and developed new digital health tools to support communities such as older adults, children, veterans, and expectant and new mothers.



Leading the nationwide effort to protect US research security

Research security is essential to scientific development while ensuring that the benefits, like technological advancements, economic growth, and national security, remain with the countries that invest in it. Led by HCDE Professor Mark Haselkorn, the SECURE Center is uniting the US research community to address critical security challenges while preserving the openness and collaboration that drives scientific progress. Through the development of a national virtual hub, SECURE is enabling researchers to share knowledge, strengthen protections, and coordinate efforts across regional centers and industry partners. This work ensures that US research remains both secure and globally competitive.



Bridging gaps to safe drinking water in Washington Schools

HCDE Assistant Professor Katya Cherukumilli is leading research to study and address issues with drinking water quality in Washington schools. In partnership with state agencies, her students are analyzing water testing data and identifying barriers that prevent schools from accessing and using available remediation funding. Through hands-on student research, the project combines data analysis, community engagement, and human-centered design to create tools that help schools interpret water quality data and take action. By bridging the gap between information and implementation, this work supports healthier school environments and promotes equity across the state.



Helping kids think critically about AI

Researchers in the CHILL Lab, led by HCDE Professor Julie Kientz, are developing new ways to help children think critically about artificial intelligence. One such effort is AI Puzzlers, a web-based game created by PhD student Aayushi Dangol that teaches kids to recognize the limits of generative AI. While AI can perform many tasks, it often struggles with abstract reasoning, something even young children can do with ease. With AI Puzzlers, kids solve visual puzzles and compare their solutions to those generated by AI, sparking conversations about how AI works and when it can be unreliable. The project supports national efforts to expand K-12 AI literacy and demonstrates the role of academic research in helping young people navigate an increasingly AI-driven world.



How federal research funding fueled a startup with global reach

Federal funding plays a vital role in advancing academic research that can spark innovation and economic impact, as seen in Professor Beth Kolko's journey from researcher to founder of the medical device startup Shift Labs. Through a decade of federally and philanthropically funded work in global health and technology design, Kolko developed a simple, affordable infusion device used in both low-resource settings and US healthcare. When traditional companies declined to commercialize her team's innovations, Kolko launched her own company, applying lessons from academia to entrepreneurship. Her experience demonstrates how foundational research enables breakthrough ideas, supports students, and drives real-world impact.

HCDE RESEARCH AREAS



Awareness, Learning, and Behavior



AI and Data Science



Social Interactions and Online Communities



Coordination, Collaboration, and Infrastructure



Novel Systems and Technologies



Just and Sustainable Futures

INTERDISCIPLINARY RESEARCH CENTERS

ALACRITY Mental Health Innovation

Co-developing digital tools and systems to make evidence-based mental health care more accessible and scalable.
Home unit: Department of Psychiatry & Behavioral Sciences
HCDE lead: Sean Munson

CIP Center for an Informed Public

Combating online rumoring, mis- and disinformation through research, media literacy tools, and policy work.
Home unit: Information School
HCDE lead: Kate Starbrid

CREATE Accessible Tech for All

Leading national efforts to embed accessibility into tech design through community partnerships and cutting-edge research.
Home unit: Paul G Allen School of Computer Science & Engineering
HCDE lead: Leah Findlater

SECURE Safeguarding US Research Integrity

Protecting the research ecosystem by developing inclusive tools and policy frameworks that promote security without compromising academic freedom.
Home unit: College of Engineering
HCDE lead: Mark Haselkorn

HCDE Alumni are Designing for Washington’s Future

HCDE alumni are making an impact across Washington State—applying human-centered design to improve technology, services, and systems in communities from Seattle to the Yakima Valley.



Todd Billow
HCDE BS '01
RICHLAND, WA

Pacific Northwest National Laboratory (PNNL)
Group Lead, Human Centered Computing

Todd Billow is a UX and Product Designer, and Group Lead for Human Centered Computing in the AI & Data Analytics Division of Pacific Northwest National Laboratory. Todd manages a staff of about 90 User Experience Designers, User Interface Engineers, Human Factors Researchers, and Software Test Engineers working in National Security. Their work supports complex challenges across the many government agencies supporting our National Security missions. They currently help these government agencies make sense of big data or make high-consequence decisions via tools powered by Artificial Intelligence and Data Analytics.



Smitha Bharadwaj
HCDE MS '12
SEATTLE, WA

Qualtrics
UX manager

Smitha Bharadwaj is a UX Design Manager at Qualtrics, an experience management platform that helps businesses improve customer and employee experiences, as well as drive strategic insights through research. She leads design teams that support two core areas: a developer platform that enables both internal and external teams to build experience management (XM) applications, and a platform for collecting user feedback through surveys. Guided by a vision to improve the human experience, her team works to help organizations serve and support their customers and employees in proactive and personalized ways.



Yuliana Flores
HCDE BS '18
WAPATO, WA

University of Washington
PhD Candidate & Research Assistant

Yuliana Flores researches engineering education with a focus on educator agency and inclusive curriculum design. Her work is shaped by her lived experiences as the eldest daughter of Mexican immigrants growing up on the Yakama Indian Reservation. Yuliana collaborates with Wapato High School to teach Usability Testing, helping students develop the language and confidence to critique educational technologies. She also partners with the Center for Engineering Learning & Teaching to support faculty nationwide in improving students' understanding of design processes. Her approach embodies HCDE's emphasis on agency and the power to redesign systems that better serve communities like her own in the Yakama Indian Reservation. She remains committed to addressing educational disparities and barriers throughout her work.

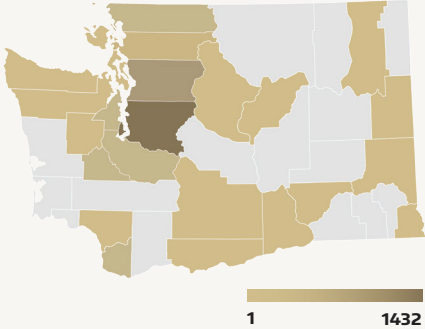


Mallory Kester
HCDE BS '18
KENNEWICK, WA

Hanford Tank Waste Operations & Closure (H2C)
Rotational Safety Specialist

Mallory Kester is part of a specialized two-year program focused on the multidisciplinary field of environmental health and safety. She works at H2C, the company leading the nation's largest and most complex radioactive waste cleanup effort—responsible for managing the closure of 56 million gallons of radioactive and chemical waste stored in underground tanks. Drawing on her HCDE education, Mallory supports the development and implementation of technical methods, systems, and processes, and contributes to the creation and interpretation of technical documentation. Her current focus is on advancing preventative strategies to reduce workplace hazards and help protect worker safety on high-risk sites.

Alumni at Work in Washington



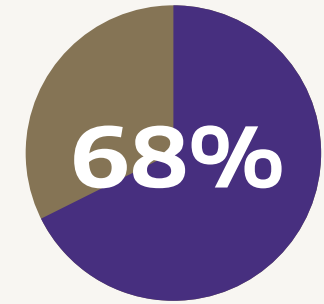
1,700+
HCDE alumni live in Washington State

- Top Washington-Based Alumni Employers**
- 1. Microsoft
 - 2. Amazon
 - 3. University of Washington
 - 4. Expedia Group
 - 5. Nordstrom

- Top HCDE Alumni Job Titles**
- 1. UX Designer
 - 2. Product Designer
 - 3. Product Manager
 - 4. Software Engineer
 - 5. UX Researcher

HCDE Students by the Numbers

UNDERGRADUATE PROGRAM: 2024-2025 ENROLLMENT



Women students,
helping to close the gender gap in tech fields

- 24%** First-Generation College Students
- 19%** Federal Pell Grant Eligible Students
- 77%** Underrepresented in STEM Students*

* Includes Women or NonBinary students, and students whose race is African American, Native American, Pacific Islander, Hispanic, or a combination of those categories.

HCDE STUDENTS IN UW ENGINEERING HONORS & ACCESS PROGRAMS 2024-2025

7 STARS students
Washington State Academic RedShirt (STARS)

6 Engineering Dean's Scholar students

8 Women Engineers Rise Professional Mentoring Program students

2 Leadership Academy students

6 Engineering Peer Educators

12 Emerging Leaders in Engineering students

HCDE HUSKY 100 AWARDEES 2023-2025

The University of Washington annually recognizes 100 students for making the most of their time as a UW student, both in and outside of the classroom.



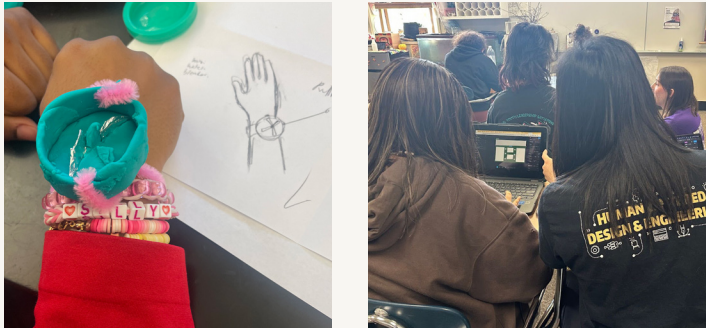
Inspiring the Next Generation of Designers and Engineers

For over a decade, HCDE has been fostering meaningful connections with young learners across Washington State through its K-12 outreach program.

Dr. Arpita, assistant teaching professor, has led the program since 2023, mentoring HCDE students in their engagement with over 350 elementary, middle, and high school students through hands-on workshops and tailored learning experiences. This outreach not only introduces young learners to the principles of human-centered design, it also helps HCDE students grow as community-engaged designers, mentors, and problem-solvers.

Through the K-12 outreach program, HCDE undergraduate and master's students conduct a range of outreach activities to engage with younger students. They visit Washington public schools and conduct workshops leading students through design scenarios such as designing with tablet apps, visual design, and physical prototyping. At Seattle World School, they've led multilingual design sessions to engage students from diverse backgrounds.

HCDE teams have also worked with community colleges, summer camps, Seattle Public Libraries, and youth programs. Through a partnership with the UW Riverways Education Partnerships program, HCDE students have participated in Alternative Spring Break experiences at Neah Bay High School on the Makah Reservation in Washington's Olympic Peninsula. In 2025, they returned for the fifth year to lead a week-long course taking high school students through the full human-centered design process—from defining a problem to brainstorming, creating user personas, ideating, and prototyping solutions.



This consistent, tailored outreach builds lasting relationships with schools and equips students with tools to address real-world problems. Many students, especially those from communities where students are not introduced to design or coding classes yet, are discovering how engineering can be used to solve problems meaningful to them.

At the heart of HCDE's K-12 outreach program is its own human-centered design challenge: HCDE students are tasked with designing the curriculum to meet the specific needs of each school, student age groups, and cultures. In partnership with K-12 teachers, they tailor each session to align with what the younger students are learning in their schools and experiencing in their lives.

This thoughtful approach ensures that the workshops are age-appropriate, culturally-responsive, engaging, and relevant to the students' existing curriculum. The HCDE outreach program has also been developing an outreach toolkit, which allows future outreach teams to organize school visits with adaptable curriculum models.



K-12 OUTREACH SINCE 2023

20

SCHOOL VISITS

350+

K-12 STUDENTS REACHED

WORKSHOP TOPICS INCLUDE:

Prototyping

Visual Design

Accessibility

Design thinking

Students + Industry: Partnering for Impact

HCDE's industry partnerships give students valuable hands-on experience by connecting classroom learning with real-world challenges. Through sponsored projects, internships, and mentorship, students collaborate with professionals to apply human-centered design methods to current issues in technology, health, education, and more.



WASHINGTON-BASED PARTNERING ORGANIZATIONS 2024-2025

Directed Research in HCDE

HCDE's Directed Research Groups offer team-based, faculty-led research experiences for undergraduate and graduate students.

Designing Healthy Eating Futures for Latinx Adolescents
Yakima Valley, WA

HCDE researchers are exploring how design can support healthy eating behaviors among Latinx families in the Lower Yakima Valley. Students are analyzing interview transcripts, shaping co-design workshop activities, and reviewing existing interventions to develop concepts that reflect the needs and goals of adolescents and their families.

Usability Study of Google Classroom in Wapato High School
Wapato, WA

HCDE researchers are collaborating with Wapato High School students to evaluate the usability of Google Classroom, the district's primary education platform since 2020. Students are supporting this effort by developing instructional materials, refining usability test protocols, and helping guide analysis to enhance the high schoolers' learning experience and research outcomes.



How you can help

At the UW, we're proud to conduct more federally sponsored research on behalf of the American people than any other public university — changing lives and boosting the nation's global competitiveness. To create this impact, the UW depends on forward-looking policies, wise investments, and the support of our community. Here's how you can help:

Speak up

Share your stories about how HCDE research and education has benefited you and your community. Join **UW Impact** if you want to receive the latest information and legislative updates about access, affordability, high-demand degree programs, and other higher ed issues.
uwimpact.org

Donate

Your support is needed now more than ever. A gift to HCDE supports scholarships, outreach, and meaningful opportunities for students. **hcde.uw.edu/give**

Partner

Collaborate with us to solve real-world challenges. HCDE partnerships advance research, expand opportunities for students, and drive innovation.
hcde.uw.edu/partner



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