



A PUBLICATION OF THE DEPARTMENT OF
HUMAN CENTERED DESIGN & ENGINEERING

DESIGNING UP



HUMAN CENTERED DESIGN & ENGINEERING
UNIVERSITY of WASHINGTON

2022-2023





HUMAN CENTERED DESIGN & ENGINEERING

Our mission

We build possibility. We advance systems and technologies for people and communities to create accessible, sustainable, and prosperous futures.

We create intersections. We thrive at the critical junction of research, education, and community to cultivate equity, access, and opportunity.

Our vision

We believe a just future is possible.

We will be the leading academic program integrating empathy and collaboration to design and engineer equitable practices, tools, and technologies across the globe.

Faculty leadership

2022-2023 YEAR

Julie Kientz

Professor
Department Chair

Beth Kolko

Professor
Associate Chair

Jennifer Turns

Professor
Associate Chair

Brock Craft

Associate Teaching Professor
Director, BS Program

Sean Munson

Associate Professor
Director, PhD Program

Daniela Rosner

Associate Professor
Co-Director, MS Program

Mark Zachry

Professor
Co-Director, MS Program



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SCHOOL/UW-HCDE

HCDE news highlights at a glance



AI Institute for children with speech & language disorders

HCDE Professor Julie Kientz is UW lead on a new multi-campus institute that will create artificial intelligence technologies for children with speech and language processing challenges. The Center was founded with a \$20 million grant from the National Science Foundation to the University at Buffalo, aimed at closing educational gaps and creating inclusive learning environments for children.



HIV/AIDS research community development project

HCDE Professor David Ribes received a grant from the National Science Foundation to support community formation and cutting-edge research on social aspects of HIV and AIDS. The project will bridge past findings of social studies of HIV and AIDS with contemporary trajectories in the field focused on three core themes: the archive, expertise, and activist participation.



Hardware ecosystems for lab automation

HCDE Professor Nadya Peek received a grant from the National Science Foundation to develop open-source hardware ecosystems for laboratory automation and science and engineering research. By focusing on decentralized production and supply chains, the project aims to improve the flexibility and accessibility of automation tools, ultimately enhancing experimental efficiency, reproducibility, and scientific progress across disciplines.



Equitable automated speech recognition

HCDE PhD student Jay Cunningham, with Professors Daniela Rosner and Julie Kientz, is studying inclusive and equitable automated speech recognition (ASR) language technologies for African American speakers of African American Vernacular English (AAVE). Supported by a grant from the Google Award for Inclusion Research Program, the team is developing equitable, community-collaborative design methods to mitigate racial disparities in ASR technologies.



Design for Black maternal health

HCDE PhD student Leslie Coney is studying the barriers that Black birthing people face when trying to access non-hospital care options, such as home birth and birthing centers, and is working to develop technology-based solutions that can support their navigation of these options. With support from a grant from the Google Health Equity Research Initiative, Coney is working to connect Black birthing individuals with non-hospital care networks.



Outstanding dissertation award

Dr. Kai Lukoff (HCDE PhD '22) received the prestigious Outstanding Dissertation Award from the Association for Computing Machinery's Special Interest Group on Computer-Human Interaction. Lukoff's dissertation focuses on addressing frustrations with technology by studying interfaces that can promote a greater sense of user agency. Through a study of the YouTube app and the development of a new app, Lukoff's dissertation demonstrates designs that can promote such agency.



Equitable childcare worker technologies

HCDE Professors Daniela Rosner and Julie Kientz received a new National Science Foundation grant to explore the future of equitable childcare worker technologies. The three-year, \$1.8 million award will support a study of technology in in-home childcare work and the design of new technologies that improve the working conditions, training, and support networks of childcare workers.



Human-centered design hub for nutrition solutions

A grant from the UW's Population Health Initiative supports HCDE PhD student Tricia Aung and Professor Sean Munson in developing a pilot human-centered design hub within the Government of Tanzania that will be equipped to innovate solutions to nutrition issues. Aung and Munson are working with a team of researchers from the US and Tanzania in developing a curriculum to guide trainees on human-centered design methodology and how it can be applied to nutrition-related projects.

Welcome new faculty

HCDE WELCOMED
THREE PROFESSORS
TO THE FACULTY IN
THE 2022-2023 YEAR.



Arpita B.
Assistant Teaching Professor

With a background in computer science and human-centered design, Arpita B. specializes in teaching and mentoring on research methods that enhance our understanding of the human experience. Her teaching portfolio includes courses on human-computer interaction, qualitative research, and the ethics of sociotechnical systems.

Arpita holds a Master of Science degree from Georgia Tech and a PhD from the University of Washington's Department of Human Centered Design & Engineering, where her dissertation focused on designing modules for managing depression in collaboration with teenagers and clinicians. She has also conducted postdoctoral research at the University of California, Irvine, focusing on the health of marginalized communities. In addition to her academic pursuits, Arpita is a trauma survivor who finds solace in both science and art. Her research projects touch her personal interests, including the wellbeing and media use of Pokémon GO players and the BTS ARMY fandom.



Alan Marks
Assistant Teaching Professor

With over three decades of experience in software development, Alan Marks' expertise lies in creating user-centered solutions. He obtained his Master of Science from the University of Washington's Department of Human Centered Design & Engineering in 1991.

Marks has worked in the industry as a UX professional, program manager, startup co-founder, and as a business and technical leader and advisor. He spent a decade at Microsoft working on large-scale problems, and many years in startups and consultancy. Before joining the HCDE faculty, Marks was CTO of a company dedicated to improving elementary math education. He has many years of teaching experience, beginning with student teaching at a primary school in college. His university-level teaching includes teaching technical writing for the College of Engineering, lecturing in HCDE for the User-Centered Design Certificate, and for the Bachelor's program since September 2019.



Ana Pinto da Silva
Associate Teaching Professor
Director, Master of Human-Computer Interaction + Design (MHCI+D)

An accomplished designer, technologist and public speaker, Ana Pinto da Silva is committed to advancing the role designers, engineers, and researchers play in the development of future-defining innovation.

Pinto da Silva has led design innovation initiatives across healthcare, education, civics, shopping, and productivity for Amazon, Microsoft, NBBJ, and is a lecturer and contributor to the Design Intelligence Leadership Institute. Inspired by the power of leadership through community, she is the founder of the Seattle Pecha Kucha speaker series, the founding co-chair of the Harvard GSD's global design impact initiative, and serves on the board of directors for the Harvard GSD MDE program, the Harvard GSD alumni council, and Leadership Tomorrow. In addition to her role on the HCDE faculty, Pinto da Silva serves as director of the UW's interdisciplinary MHCI+D program.

Husky 100

HCDE STUDENTS DAWIT BORROWS, JOHN FOWLER, AND AMODINI KHADE WERE NAMED TO THE 2023 COHORT OF THE HUSKY 100. THIS PROGRAM ANNUALLY RECOGNIZES 100 STUDENTS ACROSS THE UW'S THREE CAMPUSES FOR THEIR OUTSTANDING WORK AND EXTRACURRICULAR ACHIEVEMENTS.



Dawit Borrows

BS, HCDE
BA, SOCIOLOGY

"I tell stories through product design, cinematography, and community organizing. In doing so, I hope to help people experience, understand, and reconstruct the world positively and pragmatically."



John Fowler

PHD CANDIDATE, HCDE

"As a PhD candidate in Human Centered Design & Engineering, I've had the opportunity to partner with researchers from the School of Social Work to explore the intersections of child welfare, technology, and public policy. Centering the lived experiences of people who have spent time in foster care, my research aims to implement practical change to the US child welfare system. I am grateful for the connections I've made at UW that have enabled me to amplify the stories of people impacted by the system."



Amodini Khade

MS, HCDE

"Connecting the dots across disciplines ranging from Artificial Intelligence policy research to understanding the impact of misinformation has taught me the importance of interdisciplinary perspectives to solve the world's most intractable problems. While finding my purpose, stories of resilience and courage have inspired me to appreciate my unique background and create a more equitable world where everyone feels like they belong. I am eager to apply my data-driven research skills to build products and elevate stories that educate and inform, and I hope my story inspires someone to carve their unique path."



Coordinating response

AN HCDE TEAM LED BY PROFESSOR MARK HASELKORN IS BUILDING THE VIRTUAL COORDINATION CENTER, A CLOUD-BASED PLATFORM FOR REAL-TIME DATA SHARING AND COORDINATED RESPONSE TO QUICKLY CLEAR ROADWAY INCIDENTS—WHILE PREPARING SEATTLE-AREA AGENCIES FOR A COLLABORATIVE RESPONSE TO “THE BIG ONE.”

Greater Seattle is one of the fastest-growing regions in the US. With its rapidly growing population, unique geography, and limited north/south corridors, the region is particularly vulnerable to incident-related traffic congestion. When an incident occurs, a coordinated response is crucial to reducing the impact on the rest of the transportation system.

Responding to roadway incidents is the responsibility of multiple agencies and jurisdictions. Prior research by HCDE's Center for Collaborative Systems for Safety, Security, and Resilience (CoSSaR) has found that even when response operations are functioning properly, the coordination among agencies remains siloed and complex.

The CoSSaR team has been working to develop the first-of-its-kind Virtual Coordination Center (VCC), a cloud-based environment where incident response agencies can share real-time data, work together in new ways to quickly clear incidents, and more effectively move people and goods throughout the transportation system. Partners on this project include Washington State Department of Transportation, Seattle Department of Transportation, Seattle Fire Department, Seattle Police Department, Washington State Patrol, King County Metro, and Sound Transit.

"To me, this is a perfect HCDE problem," said Professor Mark Haselkorn, the director of CoSSaR and project manager of the VCC.

"The mobility of an entire region is a highly complex system of people with different needs and ways of working, but loosely tied together with shared goals of maintaining a safe, efficient, and resilient transportation system. We have many elements to design for, but meeting everyone's needs in their diverse contexts is the central design challenge."

As of May 2023, the VCC is in use by nearly 200 Seattle-area transportation managers, emergency responders, and public information officers across the seven partner agencies.

When an incident occurs, VCC users are updated in real-time about the incident with a shared dashboard view of how other agencies are responding. First responders like police and fire departments can share information about what is happening on the ground, congestion managers can close ramps or change signal timings to divert traffic, transit agencies can strategically deploy buses and rail cars, and public information officers can coordinate on a unified message.

The CoSSaR team began working on this project in 2017, after being approached by Challenge Seattle, an alliance of the 22 largest regional employers led by former Washington State Governor Christine Gregoire, working together with the University of Washington's CoMotion Mobility Innovation Center. From 2017 through 2020, the CoSSaR team conducted workshops with all the various stakeholders to understand

their needs and ideate in a series of feedback design cycles. With support from partners at Pariveda Solutions, the team used agile design processes, which segments the project into stages and incorporates stakeholders at each stage.

One of the biggest challenges the team has faced is working with individuals across agencies with different communication pathways and hierarchies. "Something that may work well for one agency can be the exact opposite for another," said Hannah Webster Heublein, the VCC's program support supervisor. "So it's been an interesting balance to design something that meets the needs of so many groups of people, but general enough that it can be customized to work with their already in-place processes. In many ways, we're designing a social community. And we need to do that by being in step with the community the whole way."

"As much as we have been developing the technology, a significant aspect of our process has been building this community too," said Dr. Sonia Savelli, HCDE senior research scientist and co-director of CoSSaR, who has led the VCC design process. "The VCC is nothing without the input of the people who are using it. And part of that includes figuring out whose input we need. For example, when we first presented this to our community of stakeholders, we heard from a King County Metro bus driver who essentially brought up that the bus drivers are almost like human

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—SONIA SAVELLI

sensors all over the system. So, that's an example of a group that had been on the periphery, but through the community-building process we've found new voices that can be accounted for in the design of the technology."

Brie Yost, a program operations specialist in HCDE, is leading the user adoption of the VCC and is onboarding new users weekly. "Each step of the way we are working with everyone who is using the VCC to get their feedback. They help us know what information we need to share when we onboard a new user, and what elements we need to put in our backlog for future iterations," said Yost.

In April 2023, the Washington legislature approved approximately \$2 million in the 2023-2025 budget to maintain the VCC and expand it to up to five additional jurisdictions in King County. The UW team foresees it eventually expanding to a state-wide program. "Expanding outside of Seattle will bring new challenges and opportunities since each jurisdiction and region will have its unique geographical features and stakeholders," said Haselkorn. "For example, if we deploy the VCC in the Vancouver-Portland corridor, we will have new design and deployment variables, like the state border and the interaction with Oregon agencies.

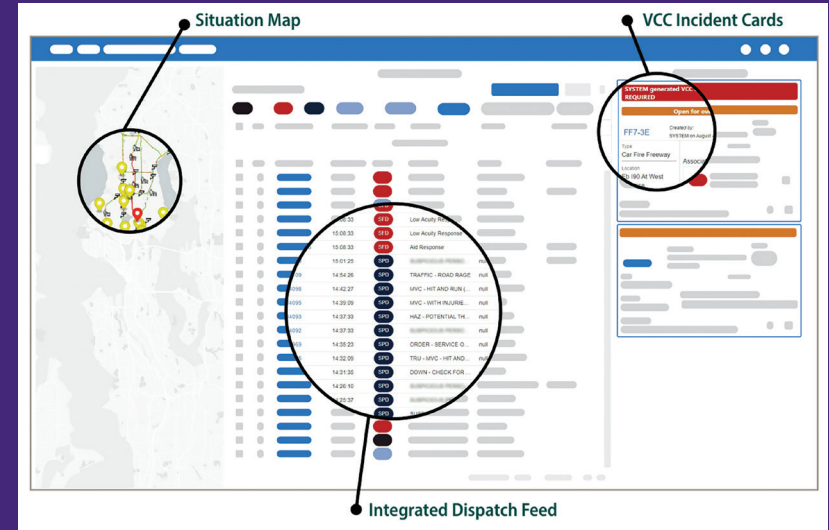
In HCDE's Spring 2023 course on Design and Management of Complex Systems (HCDE 520), Professor

Haselkorn is leading students in imagining the future of the VCC. As part of a class project, students are interviewing transportation operators about their experiences and proposing projects for the VCC expansion.

"While a lot of mobility issues are local, if the incident is big enough you suddenly need a lot of different cities and counties to work together on a statewide or multi-state response," said Savelli. "We know nobody picks up a new system during a major emergency, so our goal is to help not only manage the day-to-day incidents but build a resilient community that is ready when something much larger comes along."

The development of the VCC is funded in part by a Federal Highway Administration's Advanced Transportation and Congestion Management Technologies Deployment Program grant, awarded to the Washington State Department of Transportation in September 2020. In addition to partnering with Washington State Department of Transportation and the City of Seattle, the VCC team is working with King County Metro, Sound Transit, Washington State Patrol, and the Port of Seattle/Northwest Seaport Alliance. Industry partners include Pariveda, Microsoft Azure Devops, Amazon Web Services, INRIX, ReadyOp, Schema, Siemens, ThoughtExchange, and WSP USA.

To learn more about CoSSaR and the VCC, **visit hcde.uw.edu/cossar.**



THE VIRTUAL COORDINATION CENTER (VCC) DASHBOARD DEPICTS A MAP OF SITUATIONS, A DISPATCH FEED INTEGRATING RESPONDING AGENCIES, AND AN INCIDENT CARD OPENED BY A VCC USER.

"TO ME, THIS IS A PERFECT HCDE PROBLEM. THE MOBILITY OF AN ENTIRE REGION IS A HIGHLY COMPLEX SYSTEM OF PEOPLE WITH DIFFERENT NEEDS AND WAYS OF WORKING, BUT LOOSELY TIED TOGETHER WITH SHARED GOALS OF MAINTAINING A SAFE, EFFICIENT, AND RESILIENT TRANSPORTATION SYSTEM. WE HAVE MANY ELEMENTS TO DESIGN FOR, BUT MEETING EVERYONE'S NEEDS IN THEIR DIVERSE CONTEXTS IS THE CENTRAL DESIGN CHALLENGE."

—MARK HASELKORN

Building Community

TWO STUDENT-LED PROJECTS ARE BUILDING COMMUNITY AROUND PERSONAL STORIES AND PASSIONS.

Uniting Tastes, Sharing Stories: Creating the HCDE Community Cookbook

RIDLEY JONES LEDOUX
HCDE PHD STUDENT

In an endeavor to celebrate diversity, build connections, and showcase the richness of the HCDE community, PhD student Ridley Jones LeDoux created an HCDE Cookbook.

"I was reflecting on community cookbooks I'd read as a child, and thinking about how food brings people together. Once I pondered that—as well as some memories of using recipe writing to teach principles of technical writing—it seemed like a great way to help build community in HCDE while we were all a bit more physically dispersed due to the pandemic," said LeDoux.



The HCDE Community Cookbook includes not just recipes but also the stories and memories associated with their favorite dishes. LeDoux received 50 recipes, with stories, submitted by HCDE students, alumni, faculty, and staff. LeDoux said she was surprised at the candor and tenderness of the recipe stories. "The wide range of creativity and culture represented really amazed me. I'll admit I got a little emotional from it all more than once."

LeDoux worked with fellow students Regina Cheng, Frances Ello, and Shenna Shim on the design of the cookbook, and she thanks the HCDE department for the support printing and distributing the book.

↑
FIND RECIPES FOR APPETIZERS, SIDES, ENTREES, DESSERTS, AND MORE, IN THE HCDE COMMUNITY COOKBOOK:
[TINYURL.COM/HCDE-COOKBOOK](https://tinyurl.com/hcde-cookbook)

Celebrating Creativity: Crafting the HCDE MakerZine

VANESSA CHIEN LAI,
TABBY SAFARI, PETRINA CHAN, & FRANCES YANG
HCDE MS STUDENTS

Born out of a desire to support, showcase, and uplift makers and crafters in the HCDE community, HCDE master's students Vanessa Chien Lai, Tabby Safari, Petrina Chan, and Frances Yang created the HCDE MakerZine in 2022.

The team received 15 submissions from students across HCDE's degree programs, covering crafts such as woodworking, fiber art, bread-making, watercolor, linocut, digital fabrication, photography, and more.



The team hopes that by showcasing the diverse talents of those in the HCDE community, the MakerZine will inspire others to explore and share their own creative pursuits, even if they fall outside the realm of human-centered design.

"Makers are often creative and critical thinkers, which explains why there are so many of us in HCDE," said Lai. "I think that no matter the craft, our passion projects and hobbies are what makes this such an enriching community. We all bring something unique to the table, as designers, researchers, and humans."

↑
GET INSPIRED AND MEET HCDE MAKERS AND CRAFTERS IN THE HCDE MAKERZINE:
[TINYURL.COM/HCDE-MAKERZINE](https://tinyurl.com/hcde-makerzine)

Designing for Inclusion

CALVIN LIANG, A PHD CANDIDATE IN HCDE, IS WORKING WITH TRANS AND QUEER YOUTH TO DESIGN AN ONLINE SEX EDUCATION RESOURCE AND BUILD MORE INCLUSIVE SEXUAL HEALTH EXPERIENCES FOR ALL.

Transgender and queer youth are often overlooked in traditional sex education, leading them to seek information online from places that are often unvalidated, unmoderated, and open to misinformation. At the same time, online spaces can provide trans and queer youth with a valuable outlet for exploring their identities, seeking information, and connecting with community.

HCDE PhD candidate Calvin Liang wants to empower trans and queer youth to take control of their online tools by identifying their specific design needs when exploring sexual health topics.

Leading a team of researchers including Professor Julie Kientz from

HCDE, Dr. Kym Ahrens from the Seattle Children's Research Institute, Dr. Molly Altman from UW School of Nursing, and Dr. Alic Shook from the Seattle University College of Nursing, Liang initially started this project in 2018 by understanding the current environment for trans and queer youth when looking for sex education resources.

By conducting a series of focus groups and co-design sessions with trans and non-binary young people in the greater Seattle area, the research team documented needs, gaps, and opportunities related to searching for sexual health information to inform the design of an online, interactive sex education tool.

This research was published in 2020 in Proceedings of the Interaction Design and Children Conference, where it received an honorable mention award.

"Not only did this initial study help us identify the design needs of an interactive tool, but it also helped us articulate how you can do this kind of work—how to have these conversations about relationships and sexual health with trans and queer young people," Liang said. "We hope our findings can influence other researchers that work with marginalized youth to approach these topics in a non-stigmatizing and safe way."

Centering trans experiences

Thanks to funding from the National Institute of Child Health and Human Development at the National Institutes of Health, with lead researcher Kym Ahrens, Liang and his team are now in the middle of a two-year project to expand the initial study and partner with a community advisory board to inform the design of an inclusive, comprehensive, and affirming sex education tool.

The Community Advisory Board (CAB) consists of trans young people from across the US, aged 16 through 25, diverse in race, gender identities, and geographic region. According to Liang, this CAB was intentionally designed to center the perspectives of Black, Latine, and Asian-American youth, and additional viewpoints that are not traditionally represented in computing research.

The researchers meet monthly with the CAB for co-design sessions, where they brainstorm new ideas and design features. Members of the advisory board share their perspectives and feedback and collaborate on prototyping and testing designs.

Through this collaborative design approach, the needs and expertise of trans youth are centered in the design. "There are increasingly more social support groups for trans young people today, but this group is unique by positioning CAB members as experts of their own lives and drivers of

research that affects their own health-related issues,” said Liang.

“Our advisory board is made of diverse trans young folks from all over the US, including from states where their basic rights to health care are currently being legislated against,” Liang said. “In such an isolating time, we are paying a lot of attention to the benefits these youth are finding by being in community together. Witnessing the really positive interpersonal connections among the group makes this work all the more meaningful to me.”

Reframing traditional sex education

Liang hopes that this project can be useful for anyone designing resources for sex education, and will help create a more comprehensive, inclusive, and age-appropriate experience for everyone.

In addition to surfacing the basics of sex education based on feedback from transgender and non-binary youth, Liang’s team is focused on the relational aspects of sexual health. “While we of course are covering things like STI prevention, birth control, PrEP, and other critical topics, we’re also talking about things like navigating consent, disclosure of your trans identity with your partner, and other issues raised by our advisory board,” Liang said.

Ensuring privacy, safety, and age-appropriate information delivery

is also a critical component of this project. “Partnering with the community advisory board has provided valuable insight into how each of these affects the lives of young trans people today and how future technologies can provide safe, secure, and relevant information,” Liang said. “For example, one previous finding warned against using an obviously trans-based aesthetic like using the trans colors because of concerns that opening up the platform in public might out them to others around them.” With the help of trans young people involved in the design process, Liang and his team have learned how providing private, safe, and relevant information must consider the social constraints that affect users’ technical experiences.

Building a more inclusive future

A guiding principle of this work is that trans people deserve the tools to learn how to have healthy, sexual, and romantic relationships. Given the absence of sex education that encompasses trans and queer experiences, there is a timely opportunity for new tools that are designed for inclusion.

“Despite what some people might try to tell them, trans and queer youth have a place in research and in this world,” Liang said. “They deserve access to healthcare and online resources that affirm their identities and make them feel seen.”



“NOT ONLY DID THIS INITIAL STUDY HELP US IDENTIFY THE DESIGN NEEDS OF AN INTERACTIVE TOOL, BUT IT ALSO HELPED US ARTICULATE HOW YOU CAN DO THIS KIND OF WORK—HOW TO HAVE THESE CONVERSATIONS ABOUT RELATIONSHIPS AND SEXUAL HEALTH WITH TRANS AND QUEER YOUNG PEOPLE. WE HOPE OUR FINDINGS CAN INFLUENCE OTHER RESEARCHERS THAT WORK WITH MARGINALIZED YOUTH TO APPROACH THESE TOPICS IN A NON-STIGMATIZING AND SAFE WAY.”

—CALVIN LIANG

HCDE Supporters

HCDE THANKS THE FOLLOWING INDIVIDUALS FOR THEIR FINANCIAL SUPPORT OF DEPARTMENTAL SCHOLARSHIPS AND STUDENT OPPORTUNITIES IN THE 2022 CALENDAR YEAR.

Sharla Akers

Aiza Ali

Kendall Avery

Cristina & Jerrold Bailet

Joanna Bailet

Erin & M. Charles Baker

Annalise Beck

Michael & Sirina Berg

D'Marcus Butler

Dale Callison

Monica Carstens & Kevin Anderson

Frank & Michelle Chiachiere

James Choi

John & Judith Clark

Andrew Davidson & Linda Norlen

Paul Delgado

Rod Wentworth & R. Jill DeMarco

Melissa Ewing

Jean & David Farkas

Michael Fernandes

Marlene Flynn

Kai Fujita

Eli Goldberg

Lynn Gottlieb

Stefania Gueorguieva

Joseph Hallock

Dian Hartono

David Hoang

Paul & Sara Hodge

Karen Holum

Eileen Hsu

India Irish

Julie Kientz & Shwetak Patel

Irina Litvin

Ross Lordon

Christine Loucks-Jaret & Terrence Jaret

Jennifer Mazuca & Wendy Sloneker

Sean Munson

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Carolyn & Robert Pendle

Theano Petersen

Leah Pistorius

Kelly Pittman

Glenn & Aileen Pruiksmas

Judith Ramey

Padma Ravikumar

Constance & Norman Rice

William Richey

Scott Schwarz

Angel Shimelish

Veronika Sipeeva

Phillip & Kelli Spencer

Kent Sullivan & Julie Solon

Kyle Thomas

Carolyn Wei & Joseph Tullio

Yun-Shan Yang

Emily Zeng

Jiayang Zhou

Support the next generation of HCDE graduates

GIVING OPPORTUNITIES TO MATCH WHAT YOU ARE MOST PASSIONATE ABOUT

Gifts to HCDE in any amount, big or small, have an impact on the department and can inspire others to donate. Depending on your passions and interests, you can **establish a new scholarship fund, donate to an existing endowment, or support the HCDE Emergency Student Support fund.**

HCDE also offers named giving opportunities beginning at \$25,000 and estate planning.

To learn more about how you can support HCDE's giving priorities, please visit **hcde.uw.edu/give.**

HCDE Emergency Student Support Fund

SUPPORT HCDE STUDENTS FACING FINANCIAL
HARDSHIP BY MAKING A DONATION TO THE HCDE
EMERGENCY SUPPORT FUND.



In a recent survey of Human Centered Design & Engineering students, 37% reported being “often” or “very often” worried about finances. This is not just an HCDE phenomenon – three out of five undergraduate students across the country are experiencing basic needs insecurity, as reported by the Hope Center for College, Community, and Justice.

Thanks to generous donors to HCDE’s Emergency Student Support Fund, every student who has requested emergency aid since the fund was created has received help to address situations such as unexpected health care costs, car repairs, legal fees, and housing insecurity.

HCDE continues to ask the community to support this fund to support students needing emergency assistance in the years to come.

Since the fund was created in 2020 with an establishing donation by HCDE Professor and Chair Julie Kientz and her husband Professor Shwetak Patel, it has supported students in alleviating compounding hardships.

The emergency aid has provided relief for students who lost work due to the pandemic, and those who had unforeseen car repairs that limited their transportation to campus and their internships. For some students who have faced food or housing insecurity, the fund acted as a bridge

until they were able to find stable employment. Thanks to donors to the HCDE Emergency Student Support Fund, students have been able to cover these unexpected costs and continue their HCDE studies.

Students may request aid from the HCDE Emergency Student Support Fund during their course of study without any explanation and can request an additional amount by providing a statement of need. The maximum amount a student can receive from this fund is \$1,000.

To contribute to the HCDE Emergency Student Support Fund, you can donate online at hcde.uw.edu/give or contact Jessie Muhm, Director of Advancement, at jmuhm@uw.edu.

MAKE A GIFT
TODAY →
[HCDE.UW.EDU/
GIVE](https://hcde.uw.edu/give)



Design Jam for Civics



HCDE STUDENTS AND COMMUNITY PARTNERS
CAME TOGETHER FOR AN AUTUMN QUARTER
DESIGN JAM TO ADDRESS THE QUESTION:
HOW MIGHT WE SOLIDIFY THE PRESENCE OF
SMALL RETAIL STORES IN OUR CITIES?

Small retail businesses are independent, often family-run, and frequently owned by women and people of color. These “mom and pop” businesses serve customers within their local community and provide a gathering place for making connections, building trust, and creating a vibrant, social space. These might be restaurants, hardware stores, markets, small childcare centers, or other retail offerings, and they are vital for economic development, racial equity, tourism, and for making human-centered cities and communities.

The 2022 Design Jam for Civics brought together student teams and community partners for a collaborative problem-solving experience to understand challenges of the business community and generate new ideas using human-centered design. Throughout October 2022, teams conducted research with local businesses, residents, and civic organizations located in Seattle’s neighborhoods of Columbia City, Pioneer Square, Central District, International District, and University District. The teams gathered data on the needs, motivations, and behaviors of the people affected by the challenges of each community.

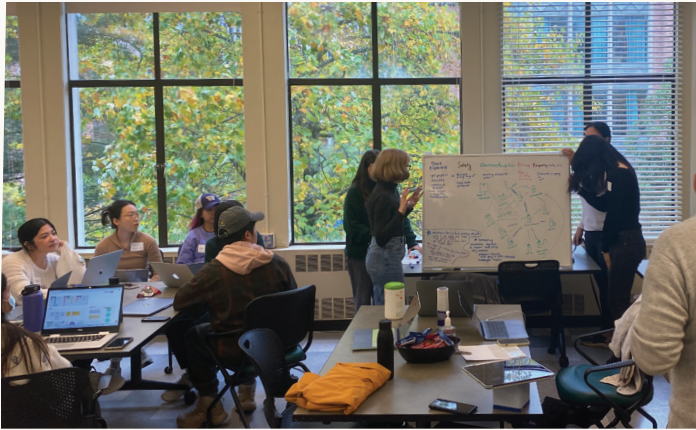
In the one-day Design Jam in November 2022, the teams incorporated their community findings, and with the help of mentors including HCDE Professor and Chair

Julie Kientz, HCDE Alumni Leadership Board President Rachael Cicero, and Avery Barnes, owner of Taswira in Pioneer Square, they generated prototypes of design concepts the partners could bring back to their communities.

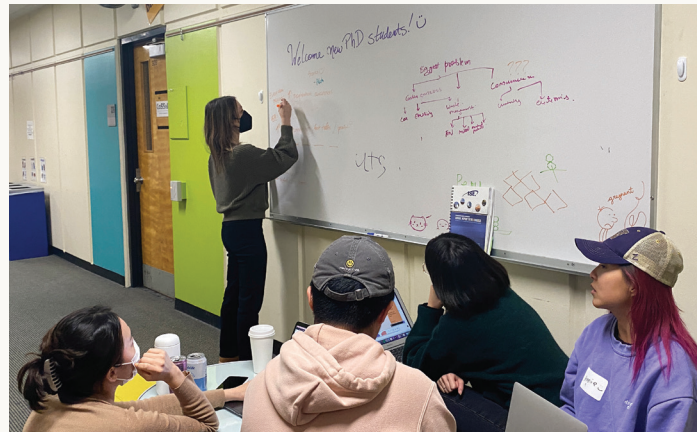
Concepts the students presented at the end of the Design Jam included amplifying small businesses using social media, using online platforms to connect local business owners in a mentorship network, using tours to facilitate discovery of businesses that receive less foot traffic, and more.

A goal of the Design Jam is to create an opportunity for students to apply knowledge and skills gained from their HCDE coursework to real-world challenges. HCDE’s inaugural Design Jam for Civics was conceived by Associate Teaching Professor Tyler Fox with Jeremy Barksdale, Councilmember for the City of Bellevue, and Rachael Cicero (MS ’20), civics design consultant for Artefact and former design manager for the City of Seattle. HCDE Outreach & Events Manager Melissa Ewing and master’s student Ganesh Karthik Sankar organized the event and recruited students and community partners.

HCDE thanks the businesses and community partners that helped make the 2022 Design Jam for Civics possible.

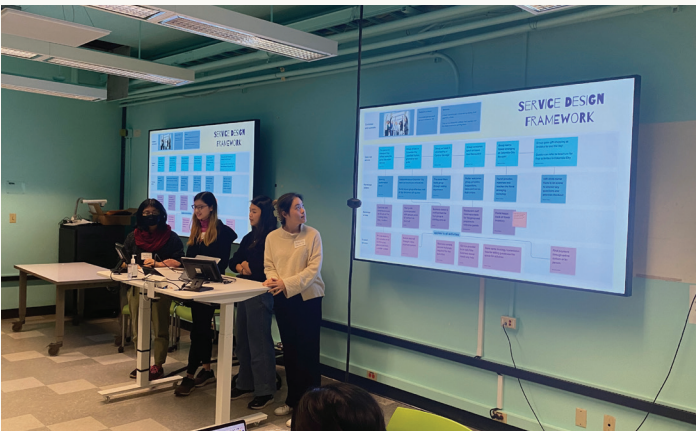


HOW
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SMALL RETAIL
STORES IN
OUR CITIES?



THANKS
TO OUR
COMMUNITY
PARTNERS

ANDALUZ /
ARTE NOIR /
CANTINA SAUVAGE /
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OF ECONOMIC
DEVELOPMENT /
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GARGOYLES
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INTRIGUE
CHOCOLATE CO. /
PURE ALCHEMY
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& CAKES /
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TASWIRA



DIRECTED RESEARCH IN HCDE



THROUGH A MULTI-YEAR INVOLVEMENT WITH A DIRECTED RESEARCH GROUP, HCDE SENIOR ALFIE AGUILAR VIDRIO HAS WORKED TO DEVELOP INNOVATIVE PATIENT-CENTERED APPROACHES FOR TUBERCULOSIS AND HIV PREVENTION AND TREATMENT MANAGEMENT.

In 2020, Alfie Aguilar Vidrio was a sophomore at UW and was exploring potential majors. He had just taken HCDE's introduction course, HCDE 210, and wanted to learn more about how HCDE can be applied to real-world projects. He applied for a Directed Research Group (DRG) led by Dr. Sarah Iribarren that was exploring the design and development of an interactive mobile app to support people with tuberculosis.

Now, three years later, Aguilar Vidrio has helped grow the project from a study of 30 participants to its peak of over 450 in a randomized controlled trial, worked with nearly 40 other UW students in the following iterations of the DRG, and served as the student DRG lead and as a research assistant with Dr. Iribarren.

Dr. Iribarren, an associate professor in the UW Department of Biobehavioral Nursing and Health Informatics, initially proposed this research group to HCDE Professor Julie Kientz as a continuation of her work piloting an app in Argentina for use by individuals with tuberculosis and their health providers.

Aguilar Vidrio conducted interviews in Spanish with patients and clinicians who used the app in the pilot study to learn about the challenges they faced in managing the disease. HCDE students in the DRG coded the interviews to find common themes, conducted usability tests, designed new interfaces, and incorporated patients' feedback into the app

functionality to refine the tools for effectiveness testing in multiple high TB burden sites.

"Tuberculosis is a contagious airborne disease and despite being treatable, continues to kill more than 1.6 million people each year globally," Aguilar Vidrio described. "When you are diagnosed you need to isolate until you are no longer contagious. So for people in remote areas or with long travel times to healthcare facilities, accessing care can be very difficult. This app helps to open the lines of communication between patients and providers and lets them interact remotely."

Through the app, patients submit progress reports about their medicine usage, side effects, and overall well-being, and they are given information about the disease and treatment. Providers access a dashboard with a summary of their patient's reports and can answer the patient's questions directly. "The feedback we received from both patients and providers has been great," Aguilar Vidrio said. "Many people are very passionate about what worked with the app or what was missing. And we were able to incorporate their feedback in the next iteration of the app before we deployed it with the next cycle of patients."

The results of the tuberculosis app have been seen in real-time during its deployment in Argentina, with an uptick in reporting frequency, indicating that the reporting system

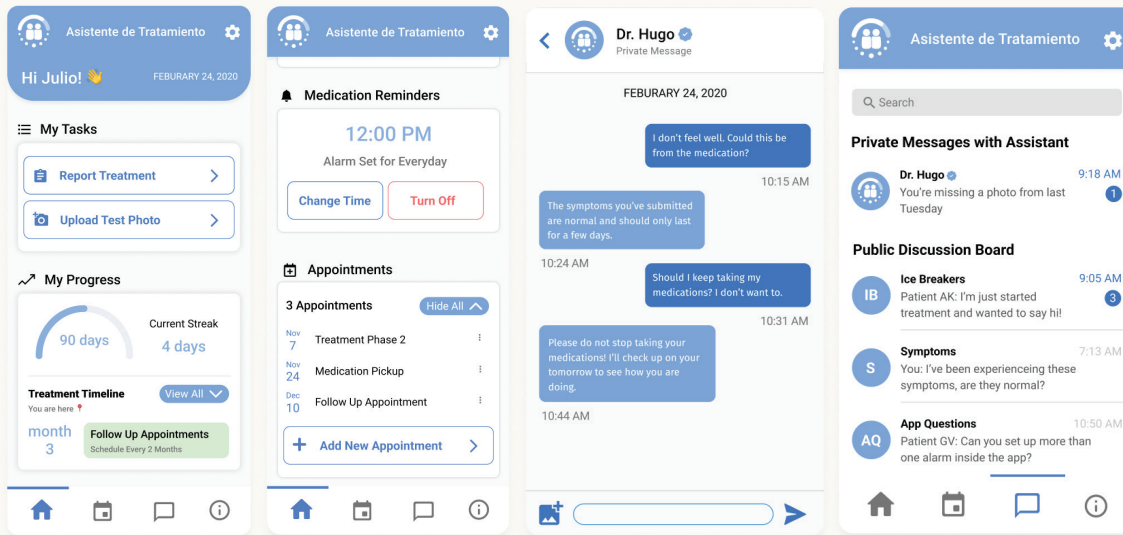
has become better for the individuals using it as a result of student-led feature updates.

In the 2022-2023 year, the DRG team has adapted the app to make it applicable for those taking medications for HIV treatment

and prevention.

"A major change with this adaption has to do with shifting from short-term to long-term support for the different diseases," described Aguilar Vidrio. "Tuberculosis is a curable disease with a set treatment timeline





↑ THE TB PATIENT APP INCLUDES TB DISEASE AND TREATMENT EDUCATION, TREATMENT PROGRESS TRACKING, POTENTIAL TREATMENT SIDE EFFECTS REPORTING, INTERACTIVE MESSAGING WITH A TREATMENT SUPPORTER, MEDICATION AND APPOINTMENT REMINDER SETTING, AND ANONYMOUS DISCUSSIONS TO CONNECT PATIENTS WITH OTHERS IN TREATMENT.

of approximately 180 days, while HIV and HIV prevention meds, like PrEP, are long-term, if not life-long, commitments. In adapting the app from its original usage with tuberculosis patients we are working to make sure it is relevant and helpful for individuals who, we hope, are going to be using it for many months or even years."

For Aguilar Vidrio, involvement in this project has been a cornerstone of his undergraduate experience. "I have been able to apply many of the design and research methods I've learned in other HCDE classes directly to a real-world problem through this project," he said. "I've also learned so much

from other HCDE students in the DRG, who have all supported this work by bringing their own expertise."

"In HCDE we learn how to use empathy—how to go into a problem space and really try to understand the user as a person," Aguilar Vidrio said. "The patients we worked with and collected data from tended to be low-income, primarily Spanish speaking, from peri-urban regions, so we were working with real barriers that exist when developing technology. It has been very validating to apply my HCDE skills to contribute meaningfully to the people we were working with. It has really affirmed my passion for this work and the ethos of the department overall."



"I HAVE BEEN ABLE TO APPLY MANY OF THE DESIGN AND RESEARCH METHODS I'VE LEARNED IN OTHER HCDE CLASSES DIRECTLY TO A REAL-WORLD PROBLEM THROUGH THIS PROJECT. I'VE ALSO LEARNED SO MUCH FROM OTHER HCDE STUDENTS IN THE DRG, WHO HAVE ALL SUPPORTED THIS WORK BY BRINGING THEIR OWN EXPERTISE."

—ALFIE AGUILAR VIDRIO



2023 Directed Research Groups

HCDE's Directed Research Groups provide valuable opportunities for HCDE faculty, undergraduate, and graduate students to work together on specific research topics or projects. HCDE offered 46 Directed Research Groups to students in the 2022-2023 academic year. Find details on just a few of these projects below, and view current group offerings at hcde.uw.edu/research/directed.

Developing accessible workflows for making tactile graphics

This DRG, co-directed by Drs. Nadya Peek, Emily Whiting, Abigale Stangl, and Sarah Coppola, aims to advance accessibility by developing a low-cost and accessible workflow for tactile graphics, which have the potential to provide information through touch for blind and low-vision communities. By combining expertise in rapid prototyping, accessible user interface development, and AI-driven design tools, the group aims to create an inclusive solution that broadens access to tactile graphics, making them more readily available and enhancing accessibility for individuals with visual impairments.

Co-designing breast cancer screening outreach tool for and with Black/African American women

This DRG, led by PhD student Raina Langevin with guidance from Professor Gary Hsieh, Bridgette Hempstead, and Dr. Leah Marcotte aims to address disparities in breast cancer screening rates among Black women. Through co-design sessions and collaboration with a breast cancer survivor organization, the team seeks to develop a prototype of a breast cancer screening outreach tool tailored to the needs and experiences of Black women, with the goal of spreading awareness, facilitating early detection, and improving breast cancer survival rates.

Hearing aid simulator

This DRG, co-led by HCDE Affiliate Faculty Drs. Elin Björling and Daniella Kim, in collaboration with Seattle Children's Hospital, has been working to create a VR hearing aid simulator to foster empathy and understanding for people interacting with kids with hearing loss. Using human-centered design methods, the team is studying what children with hearing aids want others to know and developing a practical VR solution to enhance awareness and support.

Understanding the Black user experience with using AI-supported text technology

This DRG, led by PhD student Jeffrey Basoah with guidance from Professors Katharina Reinecke and Daniela Rosner, investigates how digital technology can better incorporate the lived experiences of Black users. By examining the cultural assumptions embedded in AI-supported text technology and exploring the perceptions and experiences of Black users, the project aims to provide insights on how to conduct an evaluation study of technology for marginalized communities to ensure that digital technology reflects and includes their lived experiences.

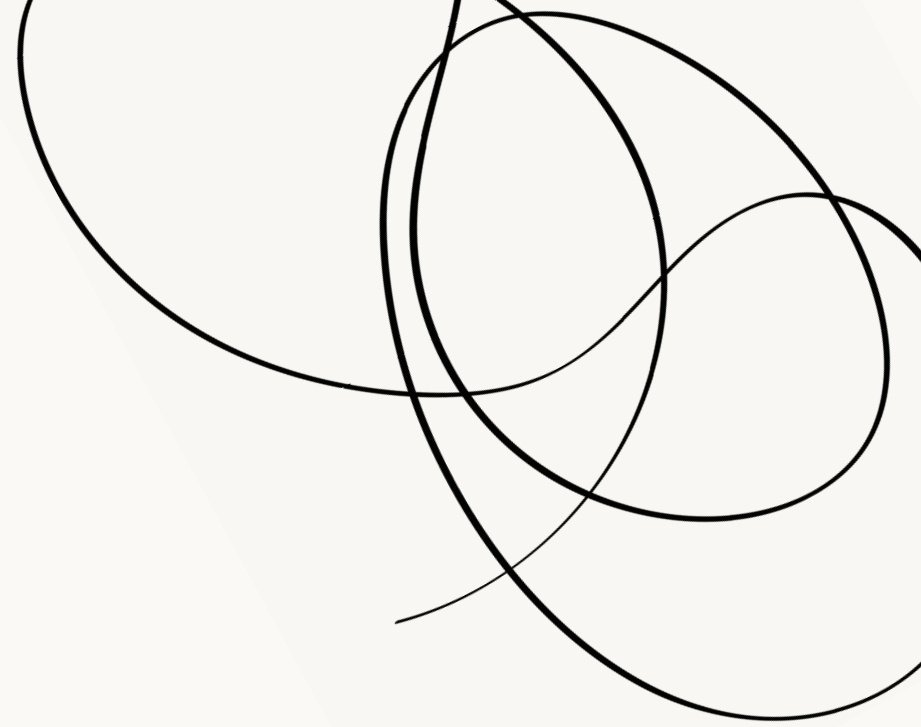
Augmented reality avatars in online group interactions

This DRG, co-directed by PhD student Weerachet Sinlapanuntakul and Professor Mark Zachry, explores the potential of augmented reality (AR) avatars in reducing Zoom fatigue and transforming virtual group interactions. By examining the adoption of AR avatars and their impact on online synchronous collaboration experiences, the research group aims to uncover insights that can shape the future of remote communication and enhance the way we engage in virtual group settings.

Examining the spread of election rumors online

This DRG, co-directed by Center for an Informed Public researchers Sukrit Venkatagiri, Emma Spiro, and HCDE Professor Kate Starbird, aims to address the proliferation of false and misleading claims surrounding the 2022 midterm elections. By classifying these claims and analyzing social media content, the team is building an understanding of how rumors can spread online during election periods.

Retirement Reflections



ANDREW DAVIDSON, AN ASSOCIATE TEACHING PROFESSOR IN HCDE, IS RETIRING AFTER SERVING ON THE HCDE FACULTY FOR 11 YEARS.

PROFESSOR DAVIDSON REFLECTS ON HIS FAVORITE MEMORIES FROM TEACHING IN HCDE AND WHAT HE IS LOOKING FORWARD TO NEXT.

Can you think back to what initially attracted you to HCDE and motivated you to join the faculty?

AD: When HCDE was hiring for its first teaching faculty position, some of the DUB faculty shared the job description with me and I thought it sounded like a wonderful opportunity.

During the interview process, I was impressed by the multidisciplinary of the faculty and the variety of kinds of work they were doing. What drew me in the most was how I felt represented in that multidisciplinary due to my diverse educational

background and work experience. I have an undergraduate degree in math, a master's in computer science, and work experience doing all kinds of things, from special effects for movies, interaction design, software development, teaching in several design programs, chairing a graduate interaction design program in Italy, and even teaching high school computer science. So I was very drawn to the holistic way HCDE approaches engineering education, and the opportunity to bring my own mixed background to the department.

Since joining HCDE, something I've come to especially appreciate is the department's "family" atmosphere. Because we're relatively small, you can get to know people really well. It's special to be able to walk down the

hallway and have conversations with students and colleagues and really get to know so many community members on a personal level. So in addition to the multidisciplinary, the close-knit nature of the department has been a great gift.

What has been your favorite class to teach in HCDE?

AD: I've been lucky enough to teach many different things in HCDE, including creating new classes and revising existing ones. But I'd say my favorite class to teach has been HCDE 539, Physical Computing and Prototyping. I created that course shortly after joining HCDE and have been teaching it ever since. The class is designed as an introduction to physical computing, which employs hardware and software to build interactive systems that operate in the physical world of sensors and devices, rather than websites and mobile apps. It is aimed at graduate students who may not have a strong technical background. It has been incredibly rewarding to witness students progress from feeling hesitant about building technology and programming to developing interactive systems and working with electronics and environments with confidence after just ten weeks. Seeing them become energized by their projects and gain a sense of accomplishment is really gratifying.

Other than teaching, what has been a highlight of your time in HCDE?

AD: One of my top highlights has been building HCDE's K-12 outreach program. This program aims to introduce younger students to HCDE as a possible degree or career path and primarily involves hands-on workshops that provide a high-level overview of the human-centered design process. Through this program, we have been able to reach thousands of middle and high school Washington students, including running three Alternative Spring Break excursions in rural Washington schools, as part of the UW's Riverways (then known as Pipeline) project. HCDE students are key to this outreach because their perspective is really valuable to the K-12 students. It's been great to see our HCDE students become teachers too, as they share their learnings with the younger students.

I think the most rewarding thing for me is when a student we reached through our outreach program ended up coming to HCDE, which has happened several times.

What has it been like teaching through the height of the COVID-19 pandemic to now?

AD: The pandemic was a huge challenge for everyone, especially during the first quarter in Spring 2020. We all had to quickly adapt our classes to remote instruction while still meeting the same pedagogical goals. I love teaching because of the in-person classroom interactions, so it was definitely tough to transition to remote instruction.

But looking back there were a few bright spots. We had different communities pop up within HCDE and around UW to support each other in navigating the technological challenges of teaching remotely, and just support one another generally. The pandemic also forced us to explore new tools and methods for collaborative brainstorming and teaching, which we've continued to use.

I definitely missed the in-person connections with my colleagues and students during the fully remote period, so I'm grateful that we are now getting back to more in-person interactions. Overall, the pandemic taught me a lot about teaching and the value of community.

What are you looking forward to in retirement?

AD: I am looking forward to spending a lot of time outside. I really enjoy cycling, kayaking, and growing things, so I'm eager to have more time for outdoor activities. I also am excited to explore more of Washington State and the Pacific Northwest, and take

advantage of all that we have outside our doorstep.

There are an awful lot of great books, films, plays, and art out in the world waiting to be experienced. I plan to dig into them. Also, I have a pretty healthy addiction to crossword puzzles and, of course, Wordle. I intend to finally tackle reading Moby Dick, and some other classics that have escaped my attention over the years.

I definitely plan to stay connected with the department and will continue to teach part-time and support the K-12 outreach program. Teaching has been such an integral part of my life that I can't imagine stopping completely. Overall, I'm looking forward to this next phase as an opportunity to keep learning. Throughout my career, I've always followed interesting opportunities where I could learn and grow, and I plan to do the same in retirement.

Any final thoughts you want to share with the HCDE community?

AD: I feel so incredibly fortunate to have had this job as the capstone of my career. I want to say thank you to every one of the students, faculty, and staff I've had the pleasure of working with. You have all taught me so much and challenged me in ways that have helped me grow as an educator and a human being. I will always cherish my time in HCDE and I am grateful for these charmed 11 years.

Fostering Innovation

NOW IN ITS SECOND YEAR, HCDE'S DOCTORAL RESEARCH GRANT PROGRAM HAS SUPPORTED 16 PHD STUDENTS WITH OVER \$10,000 IN RESEARCH FUNDING.

The Department of Human Centered Design & Engineering has launched a new funding program to empower PhD students in their pursuit of novel research agendas that are shaping the future of the field.

The Doctoral Research Grant Program in HCDE is designed to support doctoral students with critical funding needed to carry out their research and advance progress toward their degrees. Grants awarded by the program can be used for research-related expenses such as data collection, participant compensation, specialized equipment purchases, and travel to present research findings at conferences. Eligible doctoral students may apply for funding bi-annually with a research proposal that describes their goals, research methods, and the significance of the work.

In addition to financial support, the program fosters a culture of innovation and collaboration within the HCDE community. Grant recipients share their work in HCDE's Research Seminar course, enhancing opportunities for peer-to-peer feedback and establishing connections beyond their research lab and PhD cohort.

"Our doctoral students have so many great research ideas—whether from their independent work, that stem from a course, or are sparked by a hallway conversation," said Sean Munson, associate professor and director of the HCDE PhD program. "With this program, we can support students in starting on these societally important projects. We hope that the support from this program will advance student dissertation research

and support preliminary research that leads to more funding for larger-scale projects down the road."

While initially intended to ease barriers to starting new projects, the program has also provided incremental funding for completing projects. "Sometimes you get to a point in a project where you know there's just a little more work that would make it that much better, but you've exhausted the available resources. This program can also help get the results of those projects out there in the world," said Munson.

As of May 2023, the HCDE Doctoral Research Grant program has supported 16 PhD students with over \$10,000 in grant funding. Find details about four of those projects on the following page.



"WITH THIS PROGRAM, WE CAN SUPPORT STUDENTS IN STARTING ON THESE SOCIETALLY IMPORTANT PROJECTS. WE HOPE THAT THE SUPPORT FROM THIS PROGRAM WILL ADVANCE STUDENT DISSERTATION RESEARCH AND SUPPORT PRELIMINARY RESEARCH THAT LEADS TO MORE FUNDING FOR LARGER-SCALE PROJECTS DOWN THE ROAD."

—SEAN MUNSON

2022 DOCTORAL RESEARCH GRANT AWARDEES

BeadPlots: A novel text visualization to aid with reading of academic papers

MURTAZA ALI

HCDE PhD student Murtaza Ali is working to address the challenge of conducting thorough literature reviews in the research field, where researchers need to review and understand large amounts of information in a limited time.

Ali has developed BeadPlots, a new visualization designed to help researchers efficiently extract meaningful insights from academic papers. BeadPlots works by representing different sections of a research paper along a vertical axis, with each section displayed as a horizontal line.

With support from an HCDE Doctoral Research Grant, Ali is conducting a user study and documenting participants' comprehension of research papers and their use of BeadPlots, compared to those without access to BeadPlots.

Ali's eventual goal is to establish BeadPlots as an effective visualization tool to aid researchers in conducting efficient literature reviews, and as a result, support the production of groundbreaking research across multiple fields.

A history of how different engineering collaborators standardized floating-point arithmetic on computers

ADAM HYLAND

HCDE PhD student Adam Hyland is working to document the history of how different engineering communities of practice collaborated to standardize floating-point arithmetic on computers. This standardization had a significant impact on numerical computing in the 1990s and 2000s, influencing various fields such as spreadsheet calculation, multimedia communication, citizen science, and computer graphics. Through studying the process of standardization, Hyland aims to gain insights into engineering collaboration and the construction of engineering knowledge.

With support from an HCDE Doctoral Research Grant, Hyland was able to visit the University of California, Berkeley, to make connections with members of the community of engineers who worked on the floating point standard. Hyland attended a dedication ceremony honoring the work of Professor Emeritus William Kahan, the primary architect of the standard, and discovered new contacts for future interviews. By combining archival research and oral history interviews, Hyland aims to make novel contributions to the collective understanding of multi-organizational engineering collaboration.

Exploring how the exercise of power contributes to racial inequity in engineering education

KENYA Z. MEJIA

HCDE PhD candidate Kenya Mejia is working to understand and address systemic barriers to diversity and inclusion within the field of engineering. Mejia's research aims to move beyond just increasing diversity numbers in engineering education and instead focuses on creating inclusive environments where all students have equitable access to resources and feel a sense of belonging. By studying the power dynamics within co-design sessions, where students and faculty collaborate to develop inclusive pedagogical practices, Mejia seeks to identify the subtle ways power is exercised and inform the creation of frameworks to address these dynamics.

With support from an HCDE Doctoral Research Grant, Mejia is conducting a series of workshops with students and faculty, and is able to compensate them for their time. According to Mejia, this compensation is critical because this work requires emotional labor and care work, both of which often go unnoticed. Through this work, Mejia aims to contribute to the understanding of power as a systemic phenomenon that can be reproduced or disrupted by individuals. By connecting individual interactions to larger systemic issues, Mejia hopes to support inclusion efforts and systemic change in engineering education.

Machine learning systems for UX practitioners

MEENA MURALIKUMAR

HCDE PhD student Meena Muralikumar is working to uncover the challenges and needs of User Experience practitioners working with technically complex design materials like Artificial Intelligence (AI) and Machine Learning (ML).

AI and ML are rapidly advancing, but prior research has found that designers struggle to design with AI and ML, and they are often considered new applications distinctly different from other technologies. Muralikumar is conducting interviews with UX designers and researchers about what challenges they face in effective ideation, prototyping, and testing for AI and ML products and what they would need to overcome it. Muralikumar's research also seeks to understand issues of fairness, accountability, transparency, and ethics (F.A.T.E) and aims to enable UX practitioners to better address biases learned by AI and ML models.

With support from an HCDE Doctoral Research Grant, Muralikumar has been able to compensate interview subjects with an honorarium. The data and results she collects from this initial study will inform her dissertation proposal and future research.

HCDE Academics

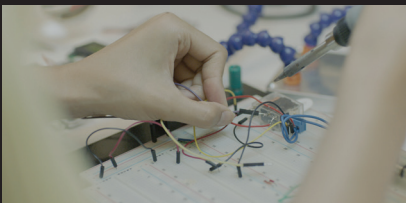


HCDE STUDENTS LEARN TO ADVANCE SYSTEMS AND TECHNOLOGIES FOR PEOPLE AND COMMUNITIES TO CREATE ACCESSIBLE, SUSTAINABLE, AND PROSPEROUS FUTURES.



Bachelor of Science in HCDE

The Bachelor of Science in HCDE enables students to learn engineering principles rooted in a broad range of disciplines to investigate the interaction of people with technology and technical development. Students gain a strong foundation in designing user experiences and interfaces, creating information visualizations, conducting user research, designing for the web, and building web technologies. More at hcde.uw.edu/bs.



Master of Science in HCDE

The Master of Science in HCDE prepares students for professional and leadership roles in user experience research and design, interface design, interaction design, product design, and human-computer interaction. HCDE Master's courses are offered in the evening to accommodate a diverse cohort of full time and part time students. More at hcde.uw.edu/ms.



Certificate in User- Centered Design

The User-Centered Design Certificate is an evening, graduate-level program for professionals who want to explore a wide range of issues in user-centered design. The Certificate coursework focuses on usability studies, user-centered design theories, visual communication and information visualization, and web design. More at hcde.uw.edu/ucd.



Doctor of Philosophy in HCDE

The Doctor of Philosophy in HCDE provides unparalleled depth and experience for students interested in studying the conception, design, implementation, evaluation, and effects of technologies. The HCDE PhD program prepares students for careers as scholars and researchers through relevant coursework, mentorship from faculty, and collaboration with peers. More at hcde.uw.edu/phd.

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linkedin.com/school/uw-hcde

HCDE directories

In our directories of current students and alumni, view where HCDE graduates are working, and find portfolio websites from current HCDE students.

ALUMNI: hcde.uw.edu/alumni/directory

STUDENTS: hcde.uw.edu/students

Alumni Leadership Board

HCDE's volunteer-run Alumni Leadership Board publishes a blog and newsletter for alumni, aimed at community building and making career connections.

hcde.uw.edu/alumni-board

Work with HCDE students

Throughout the year, HCDE has several opportunities for alumni and industry friends to work with HCDE students, including mentorship, project sponsorship, and guest lecturing.

To stay informed about upcoming opportunities, email HCDE's Outreach & Events Manager Melissa Ewing at mewing3@uw.edu.



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