A PUBLICATION OF THE DEPARTMENT OF HUMAN CENTERED DESIGN & ENGINEERING

DESIGNER

HUMAN CENTERED DESIGN & ENGINEERING UNIVERSITY of WASHINGTON



Dear HCDE alumni and friends,



Welcome to our annual Designing Up publication, where we highlight activities and accomplishments of students, alumni, faculty, and researchers from the University of Washington's Department of Human Centered Design & Engineering (HCDE).

This was an exciting year for us in HCDE. After 18 months of fully remote operations, we were able to welcome our students, faculty, and staff back to campus at the beginning of the academic year. I have enjoyed teaching in the classroom again, casually connecting with students over our weekly Tea Times in Sieg Building, and hosting some of our flagship events in person again, like HCDE Graduation, Distinguished Lecture Series, and Alumni BBQ.

This year we welcomed a new faculty member, Dr. Sayamindu Dasgupta, who joined our faculty as an assistant professor in January. Dr. Dasgupta's research focuses on critical data literacy for young people. He has designed systems to enable children to design and develop their own data analysis tools, evaluated design changes in existing systems that allow more creative possibilities with data, and studied how children question and critique data and data-driven systems.

This year we also added a new course on Service Design to our master's curriculum. On page 12, read about one student team that designed a sustainable meal delivery service to include insect protein.

HCDE students and alumni continue to make an impact out in the world. This year we were honored that alumnus Phil Spencer, CEO of gaming at Microsoft, was recognized with the Diamond Award for Distinguished Achievement in Industry by the College of Engineering. You can read more about Phil on page 4.

We also have HCDE entrepreneurs bringing human-centered design to the core of company building. On page 10, read about Professor Beth Kolko's new role with Pack Ventures, a venture capital firm that supports UW-related companies, and about PhD candidate Melinda Haughey's new startup for people to create interactive maps. We are always working to expand career preparation opportunities for students. On page 5, read about our Mentorship Pods Program, a new initiative that matched 185 current HCDE students with 54 industry mentors.

This winter, HCDE hosted a top-notch UX Speaker Series, featuring a record number of alumni as guest presenters. View the series online and read more about this year's presentations on page 24.

We are continuing to improve our classroom, lab, and office spaces in HCDE's home of Sieg Building. On page 6, view photos from our newest maker space on the first floor of Sieg, designed to support student research related to making.

Members of the HCDE community are always doing great work, so I encourage you to stay up on our latest developments by following news on HCDE website or connecting with us on Facebook, Twitter, LinkedIn, and Instagram.

Thank you for your support that helped make this another great year for HCDE.

Sincerely,

Julie Kientz

PROFESSOR & CHAIR HUMAN CENTERED DESIGN & ENGINEERING

news highlights ataglance

INITIATIVES, EVENTS, AND ACCOLADES, FROM HCDE STUDENTS AND FACULTY IN THE 2021-2022 ACADEMIC YEAR.



HCDE Distinguished Lecture

HCDE's Judith Ramey and Stephanie Rosenbaum Distinguished Lecture Series welcomed special guest Dr. Lucy Suchman for the presentation, "Open worlds and the limits of datafication." In this talk, Dr. Suchman discussed automation of targeting, both in its operations in the context of militarization and armed conflict and the broader sense of discriminatory profiling. View a recording at hcde.uw.edu/distinguished-lecture.



TED Talk on Fanfiction

HCDE Professor Cecilia Aragon delivered a TED Talk about her research into fanfiction writing communities, and how the creative outlet fosters a sense of belonging, strengthens writing skills, and is shaping the future of literature. View the talk, "The Creativity and Community Behind Fanfiction," at hcde.uw.edu/news/aragon-ted.



Connecting the EdTech Research EcoSystem

HCDE Professor Julie Kientz is the UW lead on the Connecting the EdTech Research EcoSystem (CERES), a network aimed at reducing the growing inequalities in children's learning and development and increasing access to education for children with disabilities. Collaborating with Kientz at UW are Information School Professors Jason Yip and Alexis Hiniker (HCDE PhD, '17). More at **hcde.uw.edu/news/ceres-2021**.



Vaccine Confidence Study

HCDE Associate Professor Gary Hsieh and PhD Candidate Spencer Williams are on an interdisciplinary research team advancing access to, and trust of, COVID-19 vaccine research. The team is conducting co-design sessions and large-scale online studies aimed at developing guidelines for integrating science-backed vaccine knowledge into social media posts. More at hcde.uw.edu/news/vaccine-confidence.



New Book: Human-Centered Data Science

HCDE Professor Cecilia Aragon co-authored a new book on best practices for addressing bias and inequality that may result from the automated collection, analysis, and distribution of large datasets. More at

hcde.uw.edu/news/aragon-hcds.



Sustained Dialogue in HCDE

Informed by the Sustained Dialogue Institue, HCDE launched a dialogue program to help groups build relationships and take action together around shared community concerns. In the 2021-2022 year, HCDE students, faculty, and staff led three dialogue groups on the topics of allyship and advocacy, campus safety, and returning to in person activities post-COVID related mandates. More at hcde.uw.edu/sustained-dialogue.



Four HCDE Students in Husky 100

HCDE students Alissa Acheson (BS '22), Elizabeth Dunbar (PhD), Kenya Mejia (PhD), and IB Sobayo (MS '22) are named to the 2022 cohort of the Husky 100, recognizing them for outstanding work and extracurricular achievements. These four join 12 other HCDE students who have been named to the Husky 100 since the program began in 2016. More at hcde.uw.edu/news/husky100-2022.



XR Day

In partnership with STMicroelectronics, HCDE hosted its second XR Day, a conference exploring capabilities and barriers in extended reality hardware, devices, and interactions that span augmented, virtual, and mixed realities. View the recorded keynotes and panel discussions at **hcde.uw.edu/xr-day**.

Faculty & Alumni Awards



Phil Spencer (BS '90) CEO, Microsoft Gaming Diamond Award: Distinguished Achievement in Industry College of Engineering

HCDE alumnus Phil Spencer received the 2022 College of Engineering Diamond Award in the category of Distinguished Achievement in Industry. This award honors outstanding Engineering alumni by their superior knowledge and significant contributions in their careers.

Spencer is CEO of gaming at Microsoft, where he heads the Xbox brand and leads the global creative and engineering teams responsible for gaming at Microsoft. He has played a key role in launching and growing multiple generations of Xbox consoles, as well as online services that connect people across the globe. He has also worked to make the gaming community safer and more inclusive for all players.

Spencer graduated with his Bachelor of Science in 1990, when HCDE was named the Department of Technical Communication. After joining Microsoft in 1988 as an intern, Spencer held numerous technical roles at the company, including leading the development of Microsoft CD-ROM titles such as Encarta and Microsoft Works. After managing Microsoft Game Studios EMEA, he led Microsoft Game Studios globally before becoming Head of Xbox in 2014. He was named Executive Vice President, Gaming in 2017.



Dr. Nadya Peek Assistant Professor, HCDE Distinguished Teaching Award for Innovation with Technology University of Washington

HCDE Assistant Professor Nadya Peek received the 2021 Distinguished Teaching Award from the University of Washington in the category of Innovation with Technology. This award recognizes faculty from across UW's three campuses who have worked to improve student learning or engagement through an inventive use of technology. Peek was selected for her innovative work developing a new curriculum to teach HCDE's course on digital fabrication remotely. Peek's course on digital fabrication is usually held in campus makerspaces. When the pandemic made that impossible, Peek developed a new curriculum that helped students master computer-aided design and 3D printing skills from home.

In this new form of learning, students lived with their 3D printers, used them on a daily basis, and created objects for personal use with them. Peek saw students engage deeply in learning, design, testing, iteration, and peer support. She also found that students got to know the machines better than they may have in the campus makerspace, gaining a deeper understanding of their machine's maintenance and experimenting with fine-tuning to create new outputs.

HCDE MENTOR PODS

HCDE'S NEW MENTORSHIP PROGRAM PAIRED 185 STUDENTS WITH 54 MENTORS IN THE 2021-2022 SCHOOL YEAR.



In the 2021-2022 academic year, the Department of Human Centered Design & Engineering launched a new mentorship program to support students in their professional development.

The new mentorship program follows a pod format, in which small groups of HCDE students are paired with one mentor. The mentors are alumni or friends of the department who work in HCDE-related disciplines. The pod format enables group learning to happen from peer to peer, as well as from the mentor. Pods meet regularly from fall through spring quarters, and discuss topics such as portfolios, interviews, and how to connect learnings from HCDE to the next career experience. In its first year, the HCDE Mentor Pods program paired 185 students with 54 mentors.

The program is facilitated by Kathleen Rascon, HCDE's director of academic services, and Melissa Ewing, HCDE's manager of outreach and events. Rascon and Ewing grouped students into pods based on their career interests and led the pods in creating a mentoring plan to set goals for each month of the program.

HCDE master's students Mark Tas, Katrina Ma, and Spencer Paullin were in a pod mentored by HCDE alumnus Joshua Nelson (MS '20), who now works as a product designer at Meta.

"I signed up for the Mentor Pod program for a few reasons. To take full advantage of the HCDE program offerings, to engage with the community more, to network with industry folks as well as peers, and to get specific advice on pivoting careers," Tas said. Tas credits his mentor's familiarity with both the HCDE curriculum and with industry as key factors in creating a successful mentorship experience.

According to Ma, being in a pod of students with similar career backgrounds and interests was another successful ingredient. "Our whole pod, including our mentor Joshua, had similar backgrounds transitioning from business to design, so we were able to focus on the topic of pivoting. Our regular meetings and goal-setting really pushed me forward throughout the year. With Josh's help, I eventually got a couple of offers for internships and a study abroad opportunity that I was really excited about."

Participating in the program as a mentor was also a valuable experience for Nelson. "Being a mentor in the HCDE Mentor Pods program was a truly fulfilling personal experience," he said. "As an HCDE alumnus, I had an incredible opportunity to help students work through some of the same questions I had as a student. Questions like: what is my end goal for this degree? How do I transition my career from business to tech? And the painfully accurate one we've all shared: 'I don't know what I don't know, except that I know that I don't know what I need to know.' The students consistently brought rich questions forward, encouraging me to examine my own experiences so I could help translate them into actionable insights."

"We really want to thank HCDE alumna Gail Thynes (BS ' 15) who helped HCDE launch its first mentorship program in 2019," said Ewing. "This program has really grown from Gail planting that seed. In the first iteration of HCDE's mentor program, Gail helped us pair 31 students with employees from Microsoft's Cloud and AI Studios teams. Over the last three years, we've been able to grow it to now serve all HCDE students who are interested in participating."

"It has been inspiring to see the power of education and community come together in this full circle of lifelong learning," said Rascon. "We aim to pair every HCDE student with a professional mentor, so we hope many more alumni and friends will get involved with us in future years."

If you are interested in participating in HCDE's Mentor Pods program as a mentor, please contact Melissa Ewing at mewing3@uw.edu.

Make Lab

A PEEK INSIDE THE NEWEST MAKERSPACE IN SIEG BUILDING THAT SUPPORTS PROJECTS RELATED TO RESEARCH AND TEACHING.



In Spring 2022, the Department of Human Centered Design & Engineering opened a new makerspace to serve the HCDE community by providing a place to prototype, build, and test projects that support research and teaching.

The MakeLab, located on the first floor of HCDE's home in Sieg Building, supports making-related projects affiliated with department researchers and students in Directed Research Groups and independent study projects.

Dr. Brock Craft, Associate Teaching Professor in HCDE and the current MakeLab Faculty Coordinator, worked with the HCDE Technology Committee to design the new space. "The MakeLab is a great new resource for the HCDE community," Craft said. "I'm really excited to see how the space will enable new opportunities for research and teaching. People in HCDE have so many exciting ideas and interactive projects in mind, and now there's a place these can be prototyped and tested without even leaving the building. I know the MakeLab will support great things to come from HCDE students and researchers."

The MakeLab features a large work area with a 3D printer, electronics workbench, interactive microcontroller prototyping supplies, sewing machine, and hand tools.

Learn more about the space at **hcde.uw.edu/makelab**.













Supporting Nighttime Reflection

HCDE STUDENT KOYO NAKAMURA PUBLISHED A STUDY ON NIGHTTIME REFLECTION AT THE ACM INTERNATIONAL CONFERENCE ON DESIGN OF COMMUNICATION STUDENT RESEARCH COMPETITION.

Self-reflection allows people to communicate deeply with themselves to evaluate past actions, emotions, feelings, and behavior. Research has found self-reflection to be important for mental and physical health, and a skill that can be used in real-time to make better decisions.

A new study led by Koyo Nakamura, a senior in the Department of Human

Centered Design & Engineering, looked at how people engage in selfreflection before bedtime, and how designers can support reflection using non-digital means.

Nakamura presented this research as part of the 2021 ACM International Conference on Design of Communication (SIGDOC) Student Research Competition.



Koyo Nakamura's exploration began in HCDE's Spring 2021 course on Interaction Design for Everyday Reflection, led by Professor Jennifer Turns. Within small groups, the class explored many different contexts related to reflection and how design may influence the action.

Nakamura joined fellow HCDE undergraduates Hannah Mei, Han Feng, and Sebastian Priss to conduct a study on how people engage in reflection at nighttime. They analyzed data gathered from interviews and surveys to make recommendations for designers to consider when trying to support people reflecting at night, and they developed a prototype reflection product.

The team's primary findings about how people conduct nighttime reflection includes varying attitudes toward technology use in bed, difficulty acting upon reflection takeaways since they are returning to the goal after a night of sleep, disruption in the time it takes to fall asleep after a long reflection, and emotional triggers related to nighttime reflection.

VIEW THE PAPER → TINYURL.COM/ NIGHTTIME-REFLECTION



To support future exploration in this area, the team generated several recommendations for designers to consider:

- 1) Stray from screen-based interactions. Understanding that interacting with technology can inhibit effort to sleep, designs supporting night-time reflection should allow for non-digital, unintrusive interactions.
- 2) Support users in acting on their reflection takeaways. Forgetting takeaways from a past reflection and anxiety to make big changes to their lifestyle were the biggest obstacles that participants faced when trying to act upon their reflection takeaways.
- 3) Consider the negative emotions that might come up in nighttime reflection. Compared to daytime reflections, reflections at night tend to be about negative experiences, at times forcing people to stay awake longer than desired.
- "I think my biggest recommendation is to carefully consider if it's even worthwhile to support reflecting at night, based on the disruption it can cause to sleep and emotional triggers that can come up right before bed," Nakamura said. "But I do think future research is warranted to help people reflect on their thoughts and emotions in a healthy way."

After the class ended, Nakamura refined the study into a research paper that he submitted to the SIGDOC Student Research Competition.

"I definitely recommend other students participate in the student research competition," he said. "When I began, I had no idea about the requirements of research paper writing but found the community of researchers to be really supportive in helping me tailor this paper to the SIGDOC audience. It was also great to attend the conference and hear from other researchers all over the world."

Nakamura credits his HCDE education for helping him approach design problems with a unique outlook. "One thing I appreciate about HCDE is there's a focus on being critical and questioning if a new technological advancement is actually a good idea for society. So I appreciate that HCDE has taught me to factor in ethical considerations when designing. It's an important mindset for humans to have in general, and especially important for those who are involved in building technology."



KOYO NAKAMURA (HCDE BS '21)

"ONE THING I APPRECIATE ABOUT HCDE IS THERE'S A FOCUS ON BEING CRITICAL AND QUESTIONING IF A NEW TECHNOLOGICAL ADVANCEMENT IS ACTUALLY A GOOD IDEA FOR SOCIETY, IT'S AN IMPORTANT MINDSET FOR HUMANS TO HAVE IN GENERAL, AND ESPECIALLY IMPORTANT FOR THOSE WHO ARE INVOLVED IN BUILDING TECHNOLOGY."

Building humancentered ventures

HOW HCDE PROFESSOR BETH KOLKO IS SETTING THE STAGE FOR ENTREPRENEURS TO FLOURISH, AND PHD STUDENT TURNED CEO MELINDA HAUGHEY IS BRINGING HER HCDE EDUCATION TO THE CORE OF HER NEW COMPANY.

Planting seeds

Beth Kolko, HCDE professor, entrepreneur, and now venture capitalist, wants to demystify the company-building process and diversify the startup playing field.

Kolko is the founder of Shift Labs, a medical technology company that builds affordable medical devices for global markets. After several years building up the company from scratch, Kolko is bringing what she learned from the startup world to HCDE, where she teaches a course called Designing a Human Centered Venture.

"Founding a startup made me realize how valuable the HCDF habits of mind are to everything that goes in to building a company," she said. "You can develop your business model, figure out who your customers are, how you will make money, etc. But the strength that HCDE can bring is an additional layer that considers things like inclusivity, sustainability, and the impact the company has on the world. In my HCDE class, I help students ask things like, who are the secondary and tertiary users and what will this company's impact be on them? What are the environmental impacts?"

Raising money for a company is something Kolko has experience with as well, and a landscape that she wants to see change. Kolko is a Senior Venture Partner in Pioneer Fund, a community of investors who went through the Y Combinator startup



BETH KOLKO, HCDE PROFESSOR & VENTURE PARTNER AT PACK VENTURES & PIONEER FUND

accelerator, and she recently signed on as a venture partner at Pack Ventures, an early-stage venture capital firm to support UW entrepreneurs.

"UW students are smart, creative, and, uniquely, about 30 percent of our students are first-generation college students, which is a huge strength," Kolko said. "We have a great opportunity to broaden the type of leaders who are building companies, and the type of companies that will change the world for the better."

In addition to expanding the pool of people who have access to venture capital, Kolko wants to break down barriers to wealth generation. "Venture investing is a way to build generational wealth. It used to be that you had to write a million-dollar-plus check to invest in a venture. But with these new funds, like Pioneer and Pack, people can write smaller checks. You don't have to already be wealthy to participate. And that's another way I see this changing the landscape, and why I'm really excited to be involved."

Kolko believes HCDF students and alumni are uniquely equipped to build companies that will change the world for the better. "We are at a critical inflection point and I think it's time for HCDE entrepreneurs to take the reins," she said. "In the past few years, the tech industry has had a reckoning around inequality and problematic or even bad-faith design. And here we are, with our curriculum that's ever-refining to focus on equitable and inclusive design, and with a critical mass of HCDE graduates out in the world. It's a perfect time for HCDE students and alumni to build their ideas into companies and have a hand in remaking the world to be more inclusive, accessible, and sustainable."

Starting up

Melinda Haughey is a PhD student in HCDE and the co-founder of Proxi, a company that helps people build and share interactive maps.

Proxi originated as a side project for Haughey. Safe trick-or-treating became even more important during the pandemic, and Haughey wanted to help her neighbors find and share information about what their trick-or-treating protocol was at their homes. The project was highly successful, with over 2,300 homes around Seattle adding information to the crowdsourced map. "After that, people started reaching out with other mapping ideas," Haughey described. "Someone said they wanted a map for their hometown that just got hit by a hurricane. Someone else wanted a map for their family trip that their siblings could all collaborate on. I realized there was a big opportunity here, and started building Proxi."

Haughey teamed up with a business partner and a developer to build their minimum viable product—the basic technology that would be needed to make maps. During that time, she enrolled in Professor Beth Kolko's HCDE course. Designing a Human Centered Venture, and started thinking about the deeper elements of building a company. "Beth really pushed us to consider the ethical elements of the business model." Haughey described. "In addition to thinking about viability and profitability, we were asked to consider, 'should you build this thing?' 'In what cases shouldn't you build this thing?' It really led me to think deeply about who this company will serve."

Haughey wants people to have a better experience with maps and believes that by making maps easier and more fun—to create, navigation will be easier for everyone. "There are really bad maps out there. So many maps are screenshots of other maps, the points are roughly positioned, and then they're saved as a PDF with no interactivity. It can be hard to figure out where you want to go or how to get directions." Haughey said. Proxi is a free, drag-and-click tool for making maps. Creators can add points, customize their maps style, and invite others to contribute to it. Maps can be shared on social media or embedded on websites or apps. On Proxi's list of featured maps, you'll find community maps such as "Black and Minority Owned Businesses," "Seattle Area Sledding Hills," and even "Budget Friendly Guide to UW," created by the UW's student paper The Daily. As of Spring 2022, over 3,000 maps have been made with Proxi, with about 25 maps being created each day. Haughey and her team are beginning to roll the platform out to other cities, starting with Austin

The growth is exciting to Haughey, but she says her HCDE background has taught her to be thoughtful about decisions related to the platform's growth. Haughey's HCDE doctoral work focuses on misinformation and disinformation, research that she says contributes to the core of how Proxi functions, including what features to add and when to add them. "As an example, one of our most requested features is to add commenting," she said. "But, as I know from my research into Facebook, Instagram, and TikTok, is comment sections are places where misinformation really spreads. And not only that, they're also really hard to monitor. So, we're thoughtful about features like this, especially when we don't have the bandwidth currently to moderate or prevent bad comments or hateful things on the platform."



MELINDA HAUGHEY, HCDE PHD STUDENT & CEO AT PROXI

Haughey appreciates the support from the HCDE community during this phase of growth for Proxi. In addition to receiving seed funding from Pack Ventures, the Proxi team has worked with HCDE students on a usability study of the map-building experience, and with a capstone team to create the first iteration of an app design.

"Through HCDE, I've been able to build a strong foundation in knowing how to build something that is valuable for people and knowing how to think deeply about the ethics of that technology. I am excited to see more HCDE entrepreneurs out in the world, who are working to build the core of a company from the inside out. And, I'd love to hear from others in the HCDE community about your experiences with Proxi, so go make a map at Proxi.co, and let me know what you think!"

BUG CENTERED DESIGN

A NEW COURSE ON SERVICE DESIGN IS AN OPPORTUNITY FOR HCDE GRADUATE STUDENTS TO CONNECT HUMAN-CENTERED DESIGN PRINCIPLES TO LARGE-SCALE ECOSYSTEMS. Service Design is a field that focuses on the success of an organization by extending beyond an individual product or user experience to cover a complex chain of interactions. For students in the Department of Human Centered Design & Engineering, a new course on Service Design is an opportunity to understand how human-centered design principles can apply to a large-scale ecosystem.

"I see Service Design as the future of UX," said Tyler Fox, an associate teaching professor in HCDE. Fox designed the new course and taught its first session in Autumn 2021. "With Service Design we can help students think about the design of holistic experiences—not just for an end-user, but for both customers and employees and the interactions involved."

"At the beginning of the course, we crowdsourced a list of services that students interact with in their day-to-day lives," Fox described. "Services like Spotify, Netflix, and Amazon were popular with the class. So those are examples of technology services, but we also talked about the service design of something like a restaurant. In a restaurant you have the front-of-house-that includes wait staff, hostess, maybe bussers or bartenders-and then in the backof-house you have the cooks, the admin staff, the inventory. When you're designing services, you are designing both of those things and the relationships between them."

Through readings and guest lectures, the students in the class explored concepts, methods, and practices for Service Design, and learned about the various Service Design deliverables such as ecosystem maps, service blueprints, narrative prototypes, and branding.

"In my mind, Service Design might traditionally come out of a business school plan, but what I think HCDE brings to this space is we're doubling down on the human aspect," said Sean Horita, a master's student from the autumn course. "Whereas a business plan might include all the financials that make the system operate, the Service Design is a plan that considers every human experience—the stuff that makes it work for people." "An additional dimension that I appreciated in the course was a lot of conversation around values, and it's a big part of what I'm taking back to my day-to-day work as a researcher," described HDCE master's student Honson Ling. "Values can kind of feel like a squishy concept, but through the course we learned how to build



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BUGBOX IS A CONCEPT FOR A MEAL DELIVERY SUBSCRIPTION SERVICE THAT USES INSECT PROTEIN. DEVELOPED BY HCDE MASTER'S STUDENTS QUILLA VALDEZ GRAVES, SEAN HORITA, HONSON LING, AND BRAYAN ZAVALA IN THE AUTUMN 2021 SERVICE DESIGN COURSE LED BY TYLER FOX. a values framework that we could introduce into our design process and return to at each stage."

The Bug Box Service

Over the 10-week quarter, students worked in small groups on a final project to address the prompt: **design a service to address the climate crisis.**

Ling and Horita teamed up with fellow students Brayan Zavala and Quilla Valdez Graves to design BugBox, a meal delivery service for eating insects.

"We all shared an interest in supply chains, and disruptions related to COVID," described Graves. "One of those impacted things currently is the global food supply chain, so we started to look at alternatives around food."

"We read an article about eating insects as an alternative form of protein, and that's what started this journey into bugs for us," described Zavala. "We found out that if you were to switch one pound of beef for one pound of cricket protein, you'd be saving more water than all the showers you take in a full year. So, that switch just makes sense. But the hard part for a Service Design project became: how many people are willing to do that? What are the barriers that they encounter, especially culturally? And how can a service express the value they may get out of making that switch?"

The team conducted interviews with subject matter experts, a consumer attitude survey, and co-design workshops with people who were



BugBox

interested in edible insects, while still being hesitant about eating them. From the workshops, they were able to pull out values and insights that guided the rest of the project: sustainability, resilience, community, and trust. "These values come through all of our different touchpoints and interactions," described Ling. "We communicate our values like trust through our branding and visual design, including tone of voice, and community through in-person events and online communities."

The BugBox service focuses on an incremental introduction to edible insects for people who are curious about the concept and passionate about climate change. BugBox is a subscription model where subscribers first encounter the brand in community-focused and familiar spots like farmer's markets, health-food groceries, and local restaurants. New users receive onboarding through the BugBox app, where they can calibrate their nutrition and dietary history to build an eater profile. Meal selections can be tailored for the quantity and type of insects, cuisines, and cooking proficiency. In addition to the meal kit and ingredient delivery, users are invited to join the BugBox community to discover local restaurant events. connect with insect producers, and learn how their actions benefit the planet.

"This course was eye-opening to me because it was the first time we considered that human-centered design doesn't always mean the enduser. With good service design you're making something work better for customers, as well as all the people doing the work and the business at large," said Horita. "To me, it was a really good glue that tied together a lot of other things I had gotten out of the HCDE curriculum."

"I am taking so much out of this course that I am already applying to different contexts," described Graves. "I work as a program manager in human resources, and I see a very natural intersection with Service Design. From onboarding to attending a meeting, to understanding employee lifecycle, using the lens of Service Design is a really enriching way to study whole experiences at a large scale."



THE TEAM TESTED THEIR CONCEPT WITH NARRATIVE PROTOTYPES, A RESEARCH METHOD USING ROLE PLAY, TO STUDY THEIR SERVICE TOUCHPOINTS. IN THIS SCENARIO, A CUSTOMER IS BEING INTRODUCED TO BUGBOX THROUGH FOOD SAMPLING AT A LOCAL GROCERY MARKET. THE STUDENTS PLAYED THE ROLES OF A SALESPERSON, A SKEPTICAL CONSUMER. AND AN INTERESTED SOON-TO-BE BUG FATER.



Black Ant Guacamole with Black Ant Salt and Chickpeas





Insect Tsukemen Ramen with Peppers and Silkworm Flavor





Saucy Cricket Nachos



C

Star Bar

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WITH BUGBOX, A USER CAN CUSTOMIZE THE SELECTION OF RECIPE CARDS THEY RECEIVE IN THEIR MEAL KIT, DEPENDING ON THEIR LEVEL OF COMFORT WITH COOKING WITH INSECTS. OPTIONS RANGE FROM INSECT POWDER TO WHOLE COOKED INSECTS.

Center for an Informed Public

HCDE ASSOCIATE PROFESSOR KATE STARBIRD ASSUMES NEW ROLE OF FACULTY DIRECTOR AT THE CENTER FOR AN INFORMED PUBLIC.

The University of Washington's Center for an Informed Public (CIP) is a leading center aimed at resisting strategic misinformation, promoting an informed society, and strengthening democratic discourse. In 2022, HCDE Associate Professor Kate Starbird, a CIP co-founder, became its second director after the two-year term of Information School Associate Professor Jevin West concluded in 2021.

"The Center for an Informed Public has taken shape around this critical challenge to address misinformation, disinformation, and other strategic manipulation, especially as they're facilitated and shaped by sociotechnical systems and the cost of societal harms to things like public health and democracy," said Starbird.

After two years of important work and impactful research, public programming and educational outreach, the CIP saw significant achievements during West's term as director, including the Center securing major federal research funding and new philanthropic support that has helped lay a strong foundation for continued successes as the CIP heads into its third year and beyond.

With recent support from the Craig Newmark Philanthropies and the National Science Foundation, upcoming research at the CIP will focus on developing 'rapid response' strategies to mitigate mis-and disinformation. "Working to advance scientific understanding of online disinformation, this research will develop and evaluate 'rapid response' methods for studying and communicating about disinformation at a sophistication and pace on par with the dynamic and interdisciplinary nature of the challenge," Starbird said.

"This is important but difficult work. These problems can sometimes feel like an insurmountable challenge, a looming mountain of BS and division casting a long shadow across our lives. At times it can feel overwhelming, and I know personally, I felt that way on occasion," Starbird said during a virtual panel event with CIP leaders on November 4. "But when we look around the CIP and across the networks we're building and the work we're all doing, when we truly take stock of all the brilliant people who care so deeply about this problem and about each other. It doesn't seem so insurmountable after all."

Priorities Starbird has outlined for the Center for an Informed Public include:

Continuing to Build Understanding Around Mis- and Disinformation

Through research, CIP-affiliated faculty, postdoctoral fellows and students at the CIP will continue to understand how and why mis- and disinformation spreads, why the public is vulnerable, and how to mitigate these challenges.

Support Communities to Develop Resources of Resisting Misinformation

Through educational programming and community engagement, the CIP aims to support communities in developing resources to protect themselves from harmful mis- and disinformation and better understand what and why they're seeing in their social media, news and content feeds.

Protecting and Supporting the CIP Community

CIP researchers spend many hours sorting through sometimes distressing



KATE STARBIRD, HCDE ASSOCIATE PROFESSOR & CENTER FOR AN INFORMED PUBLIC DIRECTOR

and challenging online content to understand the dynamics of mis- and disinformation, which can significantly impact their emotions and well-being. The CIP aims to develop resources and practices to care for researchers' safety, mental health, and well-being.

Creating a Better and More Just Future

To shape systems that support public health, science, democracy, and justice for future generations, the Center will continue to recruit, train, and mentor junior scholars to be the foundation of this emerging field, as well as to increase diversity in the Center and support equity and inclusion across CIP's partnership and through research.

PANEL CONVERSATION WITH CIP FACULTY FOUNDERS → TINYURL.COM/ CIP-LEADERSHIP



Study of former foster youth

HCDE RESEARCHERS WANT TO SUPPORT THE TRANSITION OUT OF FOSTER CARE BY UNDERSTANDING WHAT FORMER FOSTER YOUTH ARE CONNECTING ABOUT ONLINE.



For youth in foster care, the period of transitioning to independent adulthood can be a difficult experience in navigating new challenges, often without the support of a guardian. Online communities are one way young adults who had previously been in the foster care system are coming together to share assistance, provide advice, or commiserate about shared experiences.

John Fowler, a PhD student in the Department of Human Centered Design & Engineering, has experience working with foster youth as a tutor at an organization called Treehouse, and as a graduate research assistant in the UW School of Social Work. He wanted to know what topics former foster youth are sharing online, and how that matches up with the traditional social work support provided in the transition to adulthood.

Fowler focused a study on a Reddit community for people who have spent time in the foster care system. With HCDE Professors Mark Zachry and David McDonald, and students in an HCDE Directed Research Group, he examined posts from the first year of the community's existence. The team coded each of the posts based on how the posters identified themselves, what topics they discussed in the posts, and the sentiment and types of speech found in the posts. They categorized the topics into one of eight domains of importance to the transition to adulthood identified by a prominent social work researcher, or

as a new topic outside of those eight domains.

The researchers found alignment with topics that social work researchers traditionally focus on, including housing, education, and employment. But they also found new topics missing from the social work literature about transitioning out of foster care. For example, in the online community, transitional youth also talked about identity factors, how they are represented in the media, how they spend open time during the holidays, and their interpersonal relationships.

"These topics outside of the traditional social work literature more completely round out the human experience of these individuals in transition," Fowler said. "I hope future research in this area will explore why former foster youth seek online platforms to have these conversations, as well as how effective the online platforms are in safely and securely facilitating their needs."

The researchers published their findings in the January 2022 issue of the Proceedings of the ACM on Human-Computer Interaction.

VIEW THE PAPER → TINYURL.COM/ FOSTER-STUDY

Ecological Collaboration

HOW RESEARCHERS IN HCDE'S DATA ECOLOGIES LAB ARE CONTRIBUTING TO SUSTAINABILITY, ENERGY FUTURES, AND ECOLOGICAL JUSTICE.

Research Scientist Dr. Shana Hirsch and Associate Professor Dr. David Ribes collaborate in the Data Ecologies Lab, where they use humancentered design to explore the intersection of the environment, science, and technology. In the below Q&A, Hirsch and Ribes describe why they believe HCDE is critical to developing solutions to the toughest environmental challenges.

HCDE: Can you tell us about your background and how you two began collaborating?

David Ribes: My research background focuses on infrastructure in the sciences. I study the organizations and technologies that support scientists, including things like data sharing and how collaboration happens across vast distances and across disciplines. When I was an undergraduate student, I worked on a project with a community of ecologists who do long-term studies of the environment. Ecology can sound like it's one field, but it's really an umbrella that includes scientists studying anything from soil, worms, air, water, the entire planet, and so on. These scientists are collecting data in different manners, from different countries, over decades or centuries, and disciplinarily they have challenges collaborating with each other. My work with ecologists involved studying their information infrastructure to understand how they share data and how they organize data across long periods of time and across heterogenous fields. So, even though today I study research infrastructure more broadly, I find myself in this community of ecology researchers thanks to that decades-long collaboration.

Shana Hirsch: My background is in environmental policy and cultural studies. My PhD focused on law, policy, and management of water resources, so when

I initially approached David about working together as a post-doctoral researcher it was because I was interested in delving further into the intersection of science and environmental management. David is a perfect collaborator for me because of his long-term work with these ecological research centers. I never expected to end up in a design and engineering department, but I have been pleasantly surprised with the many ways my work has benefited from incorporating human-centered design and things I've learned from working with HCDE students. My work over the last several years in HCDE led me to my current role as Associate Director of the University of Washington's division of the Pacific Marine Energy Center, a consortium of universities focused on the responsible advancement of marine renewable energy.

HCDE: How do you believe HCDE methods and practices can contribute to ecological research?

SH: In my work, I am thinking about energy and environmental futures. To think about futures, we need a space where we can imagine those futures, and I think that methods from the field of humancentered design open those opportunities. So by that I mean using research and design methods that are participatory. Including the people that you are studying as part of the design and engineering process. In my work, that would be bringing all the people who are working on marine energy together into a room and leading them through a series of exercises that would allow them to imagine new ways of working together or new applications for their innovation.

DR: I think human-centered design and engineering is also an avenue to investigate across time: the past, present, and possible futures of ecology and the environment. With HCDE we can design for

today's solutions and impacts, while also considering downstream effects. Like Shana's example, if we were building a new facility for marine energy, we would involve those who may be impacted by the facility in the design process—such as local residents, or even animals! We can also use human-centered design to look at the lifespan of the facility, including who or what will be displaced or was already displaced. In this way, we can use human-centered design to address the legacies of ecological racism, pollution, and downstream impacts on our children and our children's children. So in HCDE we are starting to think about possible futures and how those will incorporate ecological justice.

SH: Understanding human values is another thing HCDE brings to this area. Human values are often not considered by scientists or other engineering disciplines, so human-centered design brings an opportunity to uncover some of those values and understand what's going to be important for the future.

HCDE: Tell us about some of your recent HCDE projects and collaborations.

DR: Shana and I recently finished a multi-year project supported by the National Science Foundation that was aimed at understanding how we can develop research infrastructures that support large-scale shifts toward carbon-free energy sources. We looked specifically at Scotland and its use of marine renewable energies. Scotland has started using more wave and tidal energy devices than any other country in the world, so we used it as a case study for understanding the drivers of innovation and ways that policy influences research and development.

SHANA HIRSCH, HCDE RESEARCH SCIENTIST

"WHAT WE REALLY NEED IS MORE PEOPLE FROM HCDE BACKGROUNDS INVOLVED IN EVERY ASPECT OF UNDERSTANDING AND MANAGING CLIMATE CHANGE, WE HAVE A LOT OF WORK TO DO AND NEED MORE PEOPLE WHO CAN HELP UNDERSTAND ISSUES THAT ARE RISING AS INNOVATION, TECHNOLOGY, AND THE ENVIRONMENT ALL INTERSECT IN EVER-GREATER COMPLEX WAYS."

-DR. SHANA HIRSCH

DAVID RIBES, HCDE ASSOCIATE PROFESSOR

"HUMAN-CENTERED DESIGN AND ENGINEERING IS AN AVENUE TO INVESTIGATE ACROSS TIME: THE PAST, PRESENT, AND POSSIBLE FUTURES OF ECOLOGY AND THE ENVIRONMENT. WITH HCDE WE CAN DESIGN FOR TODAY'S SOLUTIONS AND IMPACTS, WHILE ALSO CONSIDERING DOWNSTREAM EFFECTS." -DR. DAVID RIBES **SH:** I have had some fantastic collaborations with HCDF students as well. I mentored an HCDF capstone team on a project proposed by the Pacific Northwest National Laboratory that was about how we might use marine energy to help track marine mammals, like whales and seals. The student team, Antonio Eggermont, Kevin Philbin, Shelby Zink, and Soumya Jindal interviewed marine scientists and oceanographers to guide their development of concepts for a tracking device that could help people follow marine mammals, and also gather data from the ocean via the marine mammals. So that was a really interesting approach, and one I think the PNNL was not expecting, which was to look at this technology as something that could potentially change our relationship with marine mammals and with the environment. A more than human relationship. I think typically those in Engineering disciplines might focus more on developing the technology itself and not on the layer that focuses on how it's going to interact with-or change our understandings of-the environment in those more subtle ways.

I'm currently mentoring a team of students competing in a national competition sponsored by the US Department of Energy's Water Power Technologies Office. The students are developing what they're calling an ocean profiling system. Powered by wave energy, it's a device that goes up and down the water column, far out at sea, and collects oceanographic data that wouldn't otherwise be collected. It's a really great project made possible by the interdisciplinary collaboration between Engineering and Oceanography students.

HCDE: What opportunities do you see for HCDE students and alumni interested in this work? **DR:** We are facing huge challenges that HCDE students are uniquely equipped to address. The methods of human-centered design and co-design can be applied to all sorts of problems.

Aligning data about climate change is a huge human-centered data science problem right now. Some data about climate change are coming from weather balloons, some from military vessels, some from fisheries, some from seismologists, and so on. But if the data aren't translated into a single image of a changing environment, the message will not be clear. Another way HCDE contributes to this work is related to the flow of misinformation and disinformation. Topics related to climate change can be incredibly politicized and highly polarizing. We have a short and closing window before it's going to be too late to do something about the changing planet. Those with the skills to analyze and challenge misinformation and disinformation are very needed in this space.

Environmental stability and mitigating climate change are on the top of everyone's mind, and through human-centered design, students can move beyond just talking about the problems to actually engineering and designing systems to achieve grand-scale effects.

SH: What we really need is more people from HCDE backgrounds to get involved in every aspect of understanding and managing climate change. I work with people from state, federal, and nongovernmental organizations who are always requesting more human-centered designers in their processes. We have a lot of work to do and need more people who can help understand issues that are rising as innovation, technology, and the environment all intersect in ever-greater complex ways.

DEAR DESIGN

IN THE DEAR DESIGN DIRECTED RESEARCH GROUP, STUDENTS EXPLORED THEIR OWN DESIGN PROCESSES BY CREATING POSTCARD REPRESENTATIONS.

Every time someone begins a design process, a tracing of each step in the process can be imagined as a "design signature." Design signatures are inherently unique and personal, and vary across different types of design projects, with different goals, constraints, and deliverables. According to decades of research on design processes by Cindy Atman, professor in the Department of Human Centered Design & Engineering, when designers have awareness of their design process, they 1) have a better understanding of the process in general, 2) stay aware of where they are in the process, 3) make informed choices for their next steps, 4) enact those choices, and 5) continue the cycle. In Dear Design, an ongoing Directed Research Group led by Professor Atman, students reflected on their design processes and created their unique design signatures. Inspired by the book *Dear Data*, an analog data postcard drawing project by Giorgia Lupi and Stefanie Posavec, Atman led the students in the creation of postcards that contained their "ideal design signatures."

Each week in the 10-week research group, students created representations of the design process from projects they observed, projects they completed in the past, or projects they did and captured specifically for the seminar. The final Dear Design postcard created by each student is their "ideal

SS Size = impact

Dear Design <u>Human Carkerd Design & Englissening</u> <u>University</u> J. Washington Seattle, WA 98105

> VIEW THE DIGITAL GALLERY → HCDE.UW.EDU/ GALLERY

design signature," a representation of the way they hope their design processes will look in the future.

In Spring 2022, Grace Barar (BS '21), a research scientist in HCDE, designed an interactive pop-up exhibit in Sieg Building to highlight this work. Each block within the exhibit displays two students' ideal design signatures, and two sides are painted a solid color. When the blocks are arranged in a specific manner as shown in the accompanying diagram, the blocks form an ideal design signature, identified through prior design process expertise research.

The concept of the Dear Design Directed Research group was co-created by Professor Atman and PhD student Kathryn Shroyer. HCDE Research Scientist Khadijah Jordan (BS '20) and Kathryn Shroyer helped lead the first iteration of Dear Design in 2020, and Grace Barar and HCDE PhD student Yuliana Flores helped lead two Dear Design groups in 2022.

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HCDE THANKS THE FOLLOWING INDIVIDUALS FOR THEIR FINANCIAL SUPPORT OF DEPARTMENTAL SCHOLARSHIPS AND STUDENT OPPORTUNITIES IN THE 2021 CALENDAR YEAR.

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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 contact Zoë Bartholomew, Assistant Director of Advancement, at zfinnb@uw.edu.

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 requested emergency aid in the 2021-2022 academic year 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 Zoë Bartholomew, Assistant Director of Advancement, at zfinnb@uw.edu.

MAKE A GIFT TODAY → HCDE.UW.EDU/ GIVE

UX Speaker Series

ALUMNI ACROSS HCDE'S DEGREE PROGRAMS PRESENTED IN HCDE'S 2022 UX SPEAKER SERIES.

The Department of Human Centered Design & Engineering annually hosts the UX Speaker Series, a ten-part seminar featuring guest presentations on current topics in user experience (UX) and related disciplines.

The 2022 UX Speaker Series, organized by HCDE Professor Beth Kolko, featured an all-star lineup of presenters that included six HCDE alumni across HCDE's degree programs. Additional presenters include Lauren Thomas, Research Scientist at IBM; Timothy Prestero, CEO at Design that Matters; Oscar Murillo, VP of Design at The Athletic; and Tracy Johnson, Senior Program Officer at Gates Foundation.

STREAM THE SERIES → HCDE.UW.EDU/UX

Carolyn Wei (PhD '06) UX Research Lead, Meta Research Strategies for Products that Support Groups

Jaleesa Trapp (BS '10) Graduate Research Assistant, MIT Co-Designing Equitable STEM Learning Experiences with and for Youth who are Marginalized

Behzod Sirjani (MS '12) Founder, Yet Another Studio Building Organizations That Learn

Ario Jafarzadeh (MS '06) Head of Design, Neeva Design strategy for a changing industry

Connie Missimer (MS '02) Author, Critical Thinking at Work Human nature meets the workplace counterintuitive findings for a happier career

Erin McLean (BS '15) Human Experiences Lead, Blue Origin Messy in the Extremes: Embracing Entropy in Design for Human Socio-Technical Systems

HCDE Academics

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

relevant coursework, mentorship from faculty, and collaboration with peers.

More at hcde.uw.edu/phd.

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 interactior of people with technology and technical development. Students gain a stron foundation in designing user experiences and interfaces, creating informatic 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-centere design. The Certificate coursework focuses on usability studies, user- centered design theories, visual communication and information visualizatio 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 re <u>searchers through</u>

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