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# DESIGNING UP

**W** | **HUMAN CENTERED DESIGN & ENGINEERING**
UNIVERSITY *of* WASHINGTON

HCDE is where equity and empathy are integral to the construction of the future. We connect complex methodologies, systems, and technologies to critical needs in everyday life.

# HCDE's Guiding Principles

## RESPECT FOR PEOPLE

We respect all individuals, communities, and their agency. We assume positive intent on behalf of those we work with and strive to understand before acting.



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HCDE researchers in the Center for Engineering Learning & Teaching are studying how the act of reflection — giving meaning to prior experiences and determining how that meaning will guide future actions — can enhance learning and better prepare students as adaptive, broad-thinking problem-solvers.

THE HCDE FIVE-YEAR STRATEGIC PLAN, LAUNCHED IN 2019, IS DESIGNED TO ALIGN THE DEPARTMENT AROUND A BOLD PATH FOR THE NEXT FIVE YEARS.

THESE ARE THE PRINCIPLES THAT WILL GUIDE OUR WORK.

# EQUITY

We centralize the needs of those who are often marginalized. We work to create environments and practices that are open and safe for all participants and perspectives from all social identities.
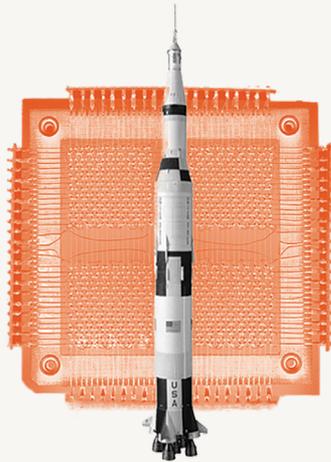


In HCDE's Tactile and Tactical Design (TAT) Lab, researchers are exploring the invisible work that went into assembling core memory, an early form of computer information storage initially handwoven by women. This project aims to broaden our understanding of who counts as a designer and what counts as a design practice.

# INTERDISCIPLINARY EXPLORATION

We celebrate innovation, iteration, and reflection using interdisciplinary methods and perspectives. As we strive toward excellence, we take acceptable risks and learn from mistakes. We seek opportunities for collaborative exploration.
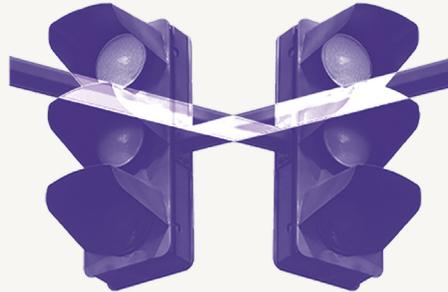


Researchers at the HCDE's Center for Collaborative Systems for Security (CoSSaR) are creating a cloud-based virtual coordination center that will allow police, fire, and traffic managers to share real-time data about what is happening on the roadways. This will enable data-driven traffic management coordination and increase the effectiveness of interagency operations.

# THOUGHTFUL IMPACT

We are action-oriented toward challenges while continually questioning and improving. We continue to follow and study the repercussions of our actions so that they maximize the possible benefits while anticipating and minimizing possible harms.



While digital and social media enable new forms of engagement, they also create space for misinformation and disinformation to spread. By focusing on specific events that bring people together on a large scale, researchers in HCDE's Emerging Capacities of Mass Participation(emCOMP) Laboratory are studying how rumors, misinformation, and disinformation spread online during crisis events.

# Student and faculty news

## Chair transitions

Dr. Julie Kientz, a Professor in HCDE, stepped into the role of Department Interim Chair at the beginning of the 2019-2020 academic year. Kientz succeeded Dr. David McDonald who completed a 5-year term as Chair and returned to the faculty as a Professor.

## Jubilee

HCDE PhD student Joshua Vasquez debuted Jubilee, an open-source multitool motion platform, at the Hackaday SuperConference. Vasquez designed Jubilee to be a multi-material 3D printer and a multicolor pen plotter, but hopes that the open-source nature means the community will enhance it with new tools in the future.

## Fulbright

HCDE Associate Professor Gary Hsieh received a Fulbright Scholar grant to research and teach in Taiwan for the 2019-2020 academic year. The Fulbright award supports Hsieh in bridging the HCI community in Taiwan with the UW's human-computer interaction community, and exchange ideas that can further strengthen the growth of interdisciplinary research.

## Design Timelines Research

HCDE Professor Cynthia Atman was invited to publish "Design timelines: Concrete and sticky representations of design process expertise," in the 40th anniversary issue of *Design Studies*. Atman's article overviews her 25 years of research on design processes.

## Graduate Research Fellowship

HCDE PhD student Wendy Roldan received the prestigious Graduate Research Fellowship Program award from the National Science Foundation (NSF). Roldan's research focuses on broadening participation of women in makerspaces.

## FACET awards

Faculty members Dianne Hendricks, Gary Hsieh, Julie Kientz, Daniella Kim, Irini Spyridakis, Linda Wagner, and Jason Yip (adjunct faculty) received the student-nominated Faculty Appreciation for Career Education & Training (FACET) awards from the College of Engineering's Career Center.

## Writers in the Secret Garden

HCDE Professor Cecilia Aragon published "Writers in the Secret Garden," co-authored with iSchool Associate Professor Katie Davis. The book explores the ways in which young people support and learn from each other through participation in online fanfiction communities.

## Forbes Under 30

HCDE senior Khyree Watson was named to the Forbes Under 30 Scholars program. Watson is among 1,000 students across the country selected by Forbes in recognition of his academic work and leadership experience.

## ATTW  Fellow

HCDE Professor Mark Zachry was named a Fellow of the Association of Teachers of Technical Writing (ATTW). This honor recognizes Dr. Zachry for his years of scholarly productivity, leadership, and service.

## Atari Women

Pernille Bjørn, a computer science professor from the University of Copenhagen, visited HCDE in the 2018–2019 academic year on a Fulbright Scholar grant. Bjørn collaborated with many students and faculty on her Atari Women project that focused on celebrating the forgotten histories of women who helped shape the early days of Atari and the computer gaming industry ever since.

## Innovators Under 35

HCDE PhD student John Porter was recognized by MIT Technology Review as one of its 35 Innovators Under 35. Porter's work focuses on accessibility in video game design, and he is currently creating a system to help game developers build accessibility into the beginning stages of their designs.

## Promotions

In 2019, HCDE celebrated the promotions of four faculty members: Dr. Julie Kientz was promoted to full professor, and Drs. Leah Findlater, Daniela Rosner, and Kate Starbird were all three granted tenure and awarded promotion to associate professor.

# Mentorship with Microsoft

THE HCDE + MICROSOFT MENTORSHIP PROGRAM PAIRS STUDENTS WITH WORKING PROFESSIONALS FOR A YEAR-LONG CAREER COACHING PROGRAM

The Department of Human Centered Design & Engineering and Microsoft are in the second year of a new partnership designed to pair students with a professional mentor to ease the transition from school to the workforce.

HCDE undergraduate and graduate students entering the final year of their degree apply for the mentor program over the summer, and department advisors match roughly 50 students with a mentor at the beginning of the school year.

The mentors were recruited by HCDE alumna Gail Thynes (BS '16), who works as a UX Designer on the Microsoft Cloud + AI team. Together with a team of volunteers at Microsoft, Thynes helped launch the program last year to address two scenarios she has witnessed since graduating. The first is the post-graduation shock that many students experience while learning to translate design in school to design in the real world, and the second is the desire to gain more leadership experience that she has heard from other early- and mid-career professionals.

The HCDE and Microsoft mentor-mentee pairs meet monthly throughout the school year to work on the student's short-term career goals and discuss critical on-the-job skills.

Haley Rohl (MS '19) participated in the inaugural program last year. Rohl, now a UX Designer at Pitchbook, credits her experience in the program with helping land her job.

"The mentor program was extremely valuable to me," Rohl said. "It gave me a chance to ask specific questions and make inroads with people actually working in the industry."

The logistics of the program takes different forms based on the needs of the mentor-mentee pair. Some mentors provide students with on-the-job shadowing, and others offer advice on job interviews and portfolio preparation.

When Rohl was actively job searching, her mentor organized members of his team to conduct a mock interview. "Nothing could have helped more than having a full panel of project managers, designers, managers, and researchers all in the room to give feedback on my portfolio and ask me general interview questions," she said. "My mentor was even thoughtful enough to create a diverse environment that would prepare me for a diverse set of interviewers. The next interview I had was the job that I got!"

Five months after graduating from HCDE, Rohl and her mentor are still in touch. "My mentor and I are still in contact, and he has been great not only with technical advice as well as overall career advice—and how to stay sane in this sometimes crazy industry," she said. "Whether its UI advice, career help, or more general design advice, as long as you set goals ahead of time, the support from these high-quality mentors can be critical. I'm so happy to have had the opportunity to participate in the program!"

With Thynes' ongoing support at Microsoft, the second year of the HCDE + Microsoft Mentor Program has even more professional volunteers. A network of Microsoft volunteers now works to organize the program, including training for mentors, events to connect students and mentors, and bringing in new Microsoft teams to the program. ∎

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THE MICROSOFT PARTNERSHIP IS THROUGH THE HCDE CORPORATE AFFILIATES PROGRAM. LEARN MORE ONLINE AT **HCDE.UW.EDU/CAP.**

# Study Abroad in London

In September 2019, a team of UW students and faculty took a deep dive into experience design in one of the world's most vibrant design capitals, with the Human Centered Design & Engineering Study Abroad in London program.

The inaugural three-week, five-credit program was led by HCDE faculty members Drs. Brock Craft and Tyler Fox, together with Dr. John Fass of the London College of Communication. Seventeen UW students participated, consisting of five graduate students and twelve undergrads.

"We wanted the students to engage in experience design using the urban environment as their site of investigation," described Craft. "The infrastructure of the city provides opportunities for students to explore new places through making observations, developing vizualizations, and designing and engineering new experiences."

Through a mixed coursework of field investigation, lecturers, and studio time, students studied experiential aspects of London's infrastructure—both its physical spaces and public activities. Sites included places like canals, pocket parks, and buildings, and activities like tourists taking selfies and people generating self-made signage. Within small teams, students captured information about their selected sites, using methods like video recording, interviews, and sketching, and interpreted their observations into new designed artifacts.

The home base for the program was GreenLab, a co-working space and collection of makerspaces focused on sustainable design. "GreenLab was an ideal partner for our program," said Fox. "Ande Gregson, Greenlab's Founder and Director, was an indispensable partner. He joined us on critiques and gave students feedback—he was instrumental in a lot of the student projects being successful."

Throughout the program, the students would explore the city and collect data on their sites, and come back to the lab to iterate on their designs, presenting evolving concepts every few days. In the third and final week of the program, students presented their final designs.

"The students created things that were really meaningful to themselves and about their experience," said Craft. "It was wonderful to see how everyone really threw themselves into their projects."

In addition to the work in the lab, the students explored many elements of London's art and design scene. The team took a tour of Bletchley Park, the site of the Codebreakers in World War Two that is often considered the birthplace of modern computing. They did the Hidden London Tour of defunct infrastructure like abandoned Tube stations. They went on a "rubbish trip," a tour exploring

"Spending three weeks working in a London makerspace has been my favorite HCDE experience so far. The way the program was organized encouraged us to not only immerse ourselves in the art and design culture of London, but also experience the everyday lifestyle of the city through the food and historical spaces we explored."

**AZIMA MANSURI, HCDE MASTER'S STUDENT**

how features of London's landscape link together through the theme of waste. They visited the Design Museum's exhibition featuring the Beazley Designs of the Year Awards in the categories of architecture, graphic, fashion, digital, transport, and product. They saw the Olafur Eliasson: In Real Life exhibit at the Tate Modern, an installation exploring topics related to society and the environment. And they were able to participate in many of the various events and exhibits occurring as part of the annual London Design Festival.

The program also welcomed guest lecturers who spoke about their work and experience design. Dr. Helga Schmid from the London College of Communication spoke about designing for time—design not for clocks but around natural time like circadian rhythms. Alistair McClymont from the London College of Communication gave a talk about his work as a digital artist. Dr. Kate

McLean presented her work creating "smellmaps" of cities and about visualizing ephemeral experiences. And Clare Farrell, co-founder of the environmental action group Extinction Rebellion, presented about designing advocacy experiences.

"I'm hopeful students came out of this program invigorated by thinking about how they can design for experiences," said Fox. "If they set out to design an app, or other technologically-mediated product, that they will think about it from the angle of an experience design. Because it's always about the experience."

Craft and Fox agreed that the close-knit nature of the program positively influenced the teaching and learning of the group. "Traveling together, eating together, working in the lab together every day, we were able to experience really tight collaborations and mentorship—we were all learning from one another the whole time." ■

# BUILDING A ~~JUST~~ FUTURE

ON THE 30TH ANNIVERSARY OF THE DEPARTMENT, WE REVIEW THE GROWTH OF OUR PROGRAM SINCE MIKE WHITE AND JIM SOUTHER BEGAN TEACHING COURSES IN TECHNICAL COMMUNICATION AT THE UNIVERSITY OF WASHINGTON IN 1974

# From TC to HCDE

FROM TECHNICAL COMMUNICATION TO HUMAN CENTERED DESIGN & ENGINEERING—CELEBRATING 30 YEARS AS A LEADING-EDGE DEPARTMENT AT THE UNIVERSITY OF WASHINGTON

The origins of the Department of Human Centered Design & Engineering can be traced back to two professors: Myron White and Jim Souther of the Department of Humanistic-Social Studies in the College of Engineering. In 1974, the pair began teaching a series of courses for students interested in the profession of technical communication, focusing on technical writing, technical editing, and managing technical communication groups in industry. Students who completed the series could either add it as a minor to another degree, or use it as a focus of an interdisciplinary bachelor's degree in Engineering or in the General Studies Program of the College of Arts and Sciences. Growth was slow in the first few years, but as program alumni found success at corporations including Boeing and Microsoft, Souther and White were able to expand the course offerings and recruit new faculty.

The program survived the 1983 dissolution of the Humanistic-Social Studies Department, and the seven faculty members - Myron White, Jim Souther, Mary Coney, Jan Spyridakis, Tom Williams, David Farkas, and Judy Ramey - became the nucleus of an Interdisciplinary Program in Scientific and Technical Communication. The program continued to focus on advancing communication knowledge and its importance in a world getting smaller through technology. In 1985, Professor Mark Haselkorn joined the faculty, replacing Souther as Director of the program. At that time the STC program began offering courses for an interdisciplinary master's degree in the College of Engineering, as well as courses for the two bachelor's degrees.

In 1986, *Forbes* described technical writing as an emerging specialty, noting the increasing importance of advanced degrees and the practicality of technical communication training. The article, which appeared in *Forbes* careers section, highlighted alumnus James Prekeges (BS STC '83), and his work at Microsoft.

As a result of the interest expressed by the business community in seeing technical communication courses made available to their employees, the program also began offering a year-long evening program through the University of Washington's Extension Program. This partnership established the Certificate Program in Technical Writing and Editing.

## 1989

The Department achieved a landmark goal in 1989 when the Interdisciplinary Program in Scientific and Technical Communication became the Department of Technical Communication, now offering its own Bachelor of Science and Master of Science degrees.

"Departmental status means a lot to us and to the entire field of technical communication," states Mark

"Technical Communication, long an afterthought in technology driven businesses, is acquiring increased stature as industries strive to incorporate user needs into the complex design and development of high-technology products. This growing stature is reflected in the elevation this past December of the program in Scientific and Technical Communication to the Department of Technical Communication in the College of Engineering."

**1990 POSTCOMM NEWSLETTER**
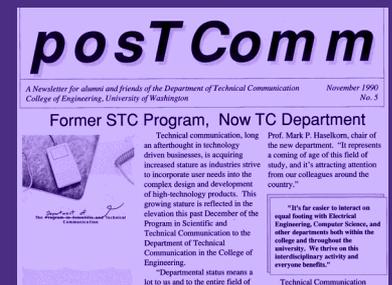


POSTCOMM NEWSLETTER NOVEMBER 1990: "FORMER STC PROGRAM, NOW TC DEPARTMENT"

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Haselkorn in the 1989 issue of the Department's posTComm newsletter. "It represents a coming of age of this field of study, and it's attracting attention from our colleagues around the country."

In 1990, Judy Ramey led the Department in the development of the Laboratory for Usability Testing and Evaluation, the first of its kind in the country to be located in an academic setting. The LUTE video-based toolkit provided the faculty and their research partners with a state-of-the-art facility for conducting research aimed at understanding and improving the usability of information and products.

"Technical Communication always had a real emphasis on end-users and on the perspective of people who were affected by technology, which was why it was a natural fit for the



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THE DEPARTMENT'S AWARD-WINNING LABORATORY FOR USABILITY TESTING AND EVALUATION (LUTE) FACILITIES SUPPORTED RESEARCHERS CONDUCTING INTERVIEWS, PROTOTYPING, USABILITY TESTING, EYE TRACKING, AND MORE.



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PROFESSOR JAN SPYRIDAKIS (CENTER) IN THE DEPARTMENT'S COMPUTER LAB WITH FIRST PHD GRADUATE CAROLYN WEI (LEFT)

Department to have a usability lab," said Professor Mark Zachry.

Professor Ramey would go on to win the Diana Award from the Association of Computing Machinery (ACM) Special Interest Group on Design of Communication (SIGDOC) in 2007 for the Lab, being recognized for the Lab's long-term contribution to the field of communication design. Past recipients of the Diana Award award include IBM, Adobe, and Apple.

In 1997, Ramey succeeded Mark Haselkorn as Department Chair, and in that year's issue of the posTComm newsletter she writes, "TC is finally coming into its own. The media are rife with news about this being the information age. But information isn't really what you need; what you really need is communication. A database manager can manage information; a technical communicator can make that information meaningful to an audience for a purpose."

The discipline of technical communication was quickly expanding to cover the growing digital world as well as the print-based world. The new millennium brought enough demand for the Department to launch an evening master's program in Technical Communication.

The first master's students were conferred in 2002, the same year that TC launched a doctoral program. A new graduate certificate in User-Centered Design followed one year later.

To keep pace with demand, and to be able to holistically analyze the user's experience with technology, the Department recruited faculty from new areas of research. Faculty were studying topics that ranged from robotics, to mobile technology, to design for underserved communities, but they all shared a passion for how information and technology can best suit human needs.

The time to change TC's name to reflect the gradual evolution was here.

"The explosive growth in computing power and the web, the penetration of new technologies into our daily lives in growing abundance, the globalization of the profession, and the spreading recognition of the vital role played by information design in successful communication challenge all of us—practitioners as well as educators—to push the power of our discipline to its limits."

**JUDY RAMEY, LETTER FROM THE CHAIR, AUTUMN 1997**

## New name, same world-class department

"No matter what we are called, this department has always been at the leading edge of our field," said HCDE Professor Mark Zachry in 2019.

Professor Zachry was one of the faculty members tasked by Department Chair Jan Spyridakis to serve on the Department's name change committee in 2008-2009.

There were several factors influencing the desire for a name change, but most importantly, "The name Technical Communication was limiting the public perception of all that we were doing," Zachry said.

Over several months, the committee conducted surveys, met with stakeholders, and reviewed current classes and research to determine what new name could encompass the diversity of research and education in the Department. The committee surveyed peer institutions across the country to ask what they think makes the University of Washington's Department of Technical Communication unique. They examined funding agencies like the National Science Foundation to compare the names of institutions receiving funding for similar research projects. They also consulted with stakeholders within the University to make sure the new name was not overstepping into the domain of other departments.

"We couldn't claim to own something like human-computer interaction which is something people from many different units on campus like the iSchool and CSE are associated with," Zachry said.

The committee arrived at Human Centered Design & Engineering. The name encompasses the Department's commitment to prioritizing the human experiences in the design and use of systems and technologies. "Technology will always change, so we want to be at the forefront of thinking about how to develop a deep understanding of people and technology—and bridging the two," said Zachry. "Sometimes, that means we are looking at communication, sometimes design, and sometimes it's through research to more deeply understand what the issues are. As a whole, those are the things we do—and have always done—really well."

Zachry credits the students with helping the Department to stay at the leading edge. "Our students are aware of things that are changing rapidly in technology and society. Their new ideas and energy inspire us as educational and research leaders. We have undergraduates launching into exciting careers, PhD students who are tackling important social and technological innovation issues, and master's students who are creative thinkers and accomplished professionals. At all levels of our programs, our students are bringing incredible things to the conversation."

# 2009

In January 2009, after a unanimous faculty vote, the Department received approval from the Office of the Provost to change its name to the Department of Human Centered Design & Engineering (HCDE), effective in degree titles beginning in Autumn 2009.

The name change helped increase interest in the HCDE academic programs, and was more effective in conveying the department's research priorities to potential collaborators and funding organizations. The department secured twice the dollar amount of grant funding within that first year and saw a 400% increase in applicants to the master's program in the first two years.

Despite the challenges of state budget cuts over several consecutive years, the HCDE faculty and staff developed innovative strategies to serve the needs of students and the goals of the program. The 2010-2011 academic year brought the formation of an External Advisory Board and the Corporate Affiliates Program, both still robust today. The External Advisory Board works to ensure that HCDE's curriculum is relevant and influential in response to academic and industry trends, and the Corporate Affiliates Program connects students with resources for jobs and internships from sponsoring organizations. In the ten years since HCDE changed its name, it has seen exponential growth in the alumni, faculty, and research impact. Between Autumn 2009, when the first HCDE degrees were granted, through Winter 2019, the Department graduated 1,184 students across the bachelor's and master's degree programs, and 39 with their doctorate in HCDE.

# 2019

As the Department's alumni population grows, so does its reach across the globe. In 2019, HCDE formalized the Alumni Leadership Board to harness the power of



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the Department's alumni to build community across the alumni and student body. Also in the 2019, HCDE embarked on a new strategic plan that will align the Department around a bold path for the next five years. The plan represents the Department's commitment to expanding awareness of its research and academic programs, advancing diversity and equity across HCDE's work and communities, and ensuring that the Department maintains a world-class educational experience.

Over the next five years, the Department is prioritizing:

→ Advancing HCDE as a high quality, influential, interdisciplinary design and engineering program, and ensuring its mission and vision are widely recognized

→ Balancing total HCDE program size and scope with demand, ensuring the financial stability and sustainability to maintain excellence in teaching and research

→ Advancing and sustaining diversity and equity across our work and communities

→ Developing and executing a strategic approach to bolstering and diversifying high-quality research and research impact

→ Strengthening integration with the College of Engineering's current goals and influence future goals

Thanks to the care of many driven faculty, staff, students, and supporters over the last thirty years, the Department of Human Centered Design & Engineering is poised to be the leading academic program integrating empathy and collaboration to design and engineer equitable practices, tools, and technologies across the globe. ∎

## WE BELIEVE A JUST FUTURE IS POSSIBLE, AND WE ARE HERE TO BUILD IT.

### JOIN US

FROM TC TO HCDE:
**A 30TH ANNIVERSARY CELEBRATION**

APRIL 22, 2020
5 – 8 P.M.
BILL & MELINDA GATES
CENTER, UW CAMPUS

**HCDE.UW.EDU/ANNIVERSARY**

# Alumna Carol Taylor reflects on the Department's evolution

ALONGSIDE THE DEPARTMENT, THREE-TIME ALUMNA CAROL TAYLOR'S CAREER HAS KEPT APACE WITH THE EVOLVING TECHNOLOGY FIELD

Carol Taylor is one of the department's few three-time graduates, earning a bachelor's in 1983, a certificate in user-centered design in 2007, and a master's in 2008.

Taylor currently works at Microsoft, where she is Director of Customer Experience for Office Templates. She has held previous roles at a range of companies from startups to Fortune 100's, on projects for hardware, software, streaming music, telecommunications, retail, food and beverage, apparel, and luxury goods. "One of the cool things about the skills you can learn in HCDE is you can really apply them to any domain," she said.

When Taylor first found the UW's technical communication program, it was offered as part of a general studies degree within the College of Engineering. "I had a passion for both English and technology, with an interest in both Life Sciences and Computer Science," Taylor described. "So the Department was a nice fit where I could incorporate many of my interests."

For her senior project, Taylor edited the master's thesis of two environmental science graduate students. Taylor's role included editing the 500-page document for grammar, readability, and clarity. "My goal was to help the authors convey their research to a general audience—to help them use clear introductions and summaries, and make sure their thesis could be understood  by people who weren't environmental scientists," Taylor said.

Taylor reflects fondly on her technical communication classes with Professors Myron White and James Souther. "They were so generous with their time," she said. "Every student was following a slightly different curriculum, so it was really labor-intensive for them. But they both brought a great sense of professionalism and humor."

When Taylor was completing her undergraduate degree, she gained hands-on experience with some of the most advanced technology of the time. "We would run computer programs written in Pascal, with punch cards that we fed into a Vax

computer—essentially a computer the size of a house," she described. "The scale and accessibility of computing power has changed profoundly since then. The power in that Vax computer is now the same amount of power in your laptop." Taylor's experience with the Vax computer led to her first job after graduating at the UW's Academic Computing Center, where she worked as a technical writer. "One of my favorite things about that job was interviewing people about interesting ways they were using computers. So at that time, it was anything from art history scholars cataloging artwork to environmental scientists studying climate science," she described.

After working in industry for several years, including partnering with fellow department alumna Donna Sakson (BS '82) to co-found Sakson & Taylor, one of the largest technical documentation companies in the country, Taylor returned to HCDE for her master's degree. "I wanted another opportunity to work with the Department's world-class faculty, particularly with my mentor, Judy Ramey," she described.

As a graduate student, Taylor led original research into how people used the internet on their mobile devices, founding the first mobile user research group at UW. "Under Judy's expert direction, we published several academic papers and authored a book chapter," she said.

Taylor credits the Department with helping her grow foundational skills that she still uses today, including



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CAROL TAYLOR ('82, '07, '08)

customer empathy, critical thinking, collaboration, and communication, as well as how to define research hypothesis and experiments, and interpret data. She encourages HCDE students today to make the most of their time in the program by taking advantage of the knowledge of the faculty, the opportunities for internships, and the friendships and connections available.

Taylor believes the Department's shift from TC to HCDE is a testament to the ingenuity of the HCDE faculty, who have always pushed to keep the curriculum relevant and expand the breadth of classes offered.  "The Department successfully made the transition from a Technical Communication program with its roots in hardware, aerospace, and ergonomics, to a world-class HCI-focused research institution. As the amount of information exponentially increases, and technology permeates more aspects of our lives, the need for people who can help interpret and simplify the world is greater than ever." ∎

**1991.** Spearheaded by Professor Judy Ramey, TC launches the Laboratory for Usability Testing and Evaluation, the first of its kind to be in an academic setting.

**1998.** James Prekeges (BS, '83) gives TC its first development fund to establish the Myron L. White Endowment Fund in support of future students.

**2004.** Donna Sakson (BS, '82), her husband Jonathan Mark, and Sakson & Taylor Inc., establish an endowed scholarship to support student diversity.

**2000.** TC welcomes its first class of evening master's students.

**2002.** The Department begins accepting applications to its new PhD program.

## 1989

## 1999

**1989.** The College of Engineering's Interdisciplinary Program in Scientific and Technical Communication becomes the full-fledged Department of Technical Communication (TC), offering its own BS and MS degrees.

**1993.** TC begins offering a graduate-level Technical Japanese Program led by Michio Tsutsui and Masashi Kato.

**1997.** The Department begins an exchange partnership with the University of Twente in the Netherlands.

**2003.** TC expands its programs for professionals by creating the Graduate Certificate in User-Centered Design.

**2005.** The Department holds its first career fair, attracting 14 employers and 40 students.

# FACULTY EVOLUTION

FULL-TIME FACULTY APPOINTMENTS

**1989**

> MARK HASELKORN APPOINTED CHAIR

**1990**

+ MICHIO TSUTSUI

**1991**

+ MASASHI KATO

**1997**

> JUDY RAMEY APPOINTED CHAIR

**2000**

+ BETH KOLKO

**2002**

+ JENNIFER TURNS

– MARY CONEY RETIRES

**2005**

– PHIL BEREANO RETIRES

**2006**

+ MARK ZACHRY

**2008**

+ CYNTHIA ATMAN

+ JULIE KIENTZ

+ SARAH KRIZ

+ CHARLOTTE LEE

> JAN SPYRIDAKIS APPOINTED CHAIR

**2009**

– TOM WILLIAMS RETIRES

**2010**

+ CECILIA ARAGON

# MIKEY AWARD

NAMED IN HONOR OF DEPARTMENT CO-FOUNDER MYRON WHITE, AWARDED ANNUALLY BY THE FACULTY TO A LEADER IN THE FIELD AND DEDICATED FRIEND OF THE DEPARTMENT

**2004**

MYRON WHITE

**2005**

GINNY REDISH

STEPHANIE ROSENBAUM

DONNA SAKSON

**2006**

LORI FISHER

**2007**

JOE WELINSKE

**2009 DEGREES GRANTED:**

+ 29 MASTER OF SCIENCE
+ 35 BACHELOR OF SCIENCE
+ 2 PHD

**2009.** HCDE students form registered Student Associations at undergraduate and master's level.

**2009.** The Department changes its name from Technical Communication to Human Centered Design & Engineering (HCDE).

**2015.** HCDE students Erin McLean and Gail Thynes launch the Women in User Experience (WiUX) student organization and conference.

**2019 DEGREES GRANTED:**

+ 83 MASTER OF SCIENCE
+ 84 BACHELOR OF SCIENCE
+ 5 PHD

**2019.** HCDE forms the Alumni Leadership Board to better connect a robust alumni community. Michael Berg (MS, '09) is the inaugural Board president.

## 2009

## 2019

**2009.** HCDE moves its offices and lab spaces from Loew Hall to the 4th floor of Sieg Hall.

**2010:** HCDE introduces the Corporate Affiliates Program to strengthen ties with industry and support students in career placement.

**2010.** HCDE forms an External Advisory Board to support the faculty regarding program promotion, curriculum innovation, job placement, and evaluation.

**2013:** Matt Shobe (MS, '96) launches the 5-year Shobe Prize, giving teams of students the opportunity to pitch ideas for a chance to win $10K in startup funding and a year of mentorship.

**2017:** HCDE sends its first cohort of students to lead a STEM-focused Alternative Spring Break in Neah Bay, WA.

**2019.** HCDE embarks on a strategic plan to guide the department's priorities for the next five years.

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**2012**

+ ANDREW DAVIDSON
+ SEAN MUNSON
+ KATE STARBIRD

**2013**

+ GARY HSIEH
+ DANIELA ROSNER
+ LINDA WAGNER
– DAVID FARKAS RETIRES
– JUDY RAMEY RETIRES

**2014**

+ DAVID MCDONALD
+ LIZ SANOCKI
> DAVID MCDONALD APPOINTED CHAIR

**2015**

+ BROCK CRAFT
+ DAVID RIBES
– MICHIO TSUTSUI RETIRES

**2016**

+ TYLER FOX

**2017**

+ LEAH FINDLATER

**2018**

+ DIANNE HENDRICKS
+ NADYA PEEK

**2019**

+ KRISTIN DEW
+ IRINI SPYRIDAKIS
– JAN SPYRIDAKIS RETIRES
> JULIE KIENTZ APPOINTED INTERIM CHAIR

---

**2008**
MARY CONEY

**2009**
KENT SULLIVAN

**2010**
JUDY RAMEY

**2011**
MICHAEL BERG

**2012**
MATT SHOBE

**2013**
SKIP WALTER

**2014**
SUZANNE BOYD

**2015**
CAROLYN WEI

**2016**
REBECCA DESTELLO

**2017**
DAVID FARKAS

**2018**
CONSTANCE RICE

**2019**
KELLY FRANZNICK

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# XR for Good

In November 2019, the Department of Human Centered Design & Engineering and partners at STMicroelectronics hosted a special event for students interested in the design and research of augmented and extended realities, or XR.

The half-day event kicked off with a panel discussion of experts working in various industries related to XR. Panelists included Marcelo Mejía Cobo, Microsoft Hololens; Todd Little (UCD '14 & MS '17), Fairworlds; Bharath Rajagopalan, STMicroelectronics; Paul Reynolds, Torch; Sasha Samochina, NASA Jet Propulsion Laboratory; and Jada Williams, Microsoft Mixed Reality.

Moderated by HCDE Lecturer Tyler Fox, the panelists discussed where virtual reality, augmented reality, and mixed reality technologies have evolved from, and where future applications are going.

After the panel, HCDE master's students Stefanie Gueorguieva and Connor O'Toole, officers from HCDE's Graduate Student Association, led students in a three-hour Design Jam. Gueorguieva and O'Toole divided students into small groups and tasked the teams with the prompt: design a wearable XR solution to solve a real-world problem.

"We hoped that participants would be able to gain experience in a new problem space and to challenge themselves with thinking about how they would design interactions using a brand new technology," Gueorguieva said.

Over the three hours, the students defined a problem that could benefit from an XR innovation, brainstormed features and applications, and developed a presentation to pitch to the rest of the participants.

The students were asked to not use any technology in their final presentations, so teams developed a script and used drawings, acting, and simple prototypes to tell the story of their proposed concepts.

The students presented the following wearable XR concepts:

+ A training environment for school bus drivers that simulates common distractions
+ An experience that helps patients recover from surgery by encouraging exercises at home
+ An application to help people empathize with climate change by visualizing time- and location-based effects
+ A game to help parents and children prepare for disaster scenarios
+ A real-time coach to improve public speaking
+ A tool to help make museums more accessible for people living with physical impairments
+ A tool to support young people with ADD and executive dysfunction by helping to envision what the immediate future looks like
+ A community-based dance instruction tool for people who are experiencing blindness
+ A tool to help doctors connect with each other and with patients in remote medical facilities
+ An online immersive and inclusive clothes shopping experience

Industry mentors provided feedback to the teams throughout the design jam and helped select a winning team, who received prizes provided by STMicroelectronics.

Gueorguieva and O'Toole said the event was encouraging to both hear from the panelists about the many applications where XR can be used to solve current problems, and to see the students identifying innovations spanning a broad range of issues. In particular, they said they are excited to see how XR can be used outside of gaming and into new fields such as education, art, and social interactions.

HCDE IS PARTNERING WITH STMICROELECTRONICS TO EXPLORE USING XR TO SOLVE REAL-WORLD PROBLEMS

← THE PARTNERSHIP WITH STMICROELECTRONICS IS THROUGH THE HCDE CORPORATE AFFILIATES PROGRAM. THE DEPARTMENT WELCOMES COLLABORATION WITH INDUSTRY AND COMMUNITY PARTNERS. LEARN MORE ONLINE AT: **HCDE.UW.EDU/CAP**

"Human Centered Design & Engineering can be important in this space due to the newness of the technology," Gueorguieva and O'Toole agreed. "As XR is used in different fields, more research and design must be done to understand how best to interact with the system and the needs of the user."

HCDE and STMicroelectronics are continuing the partnership by offering a day-long conference in March 2020, focused on exploring the future of XR design and technology. Details online at **hcde.uw.edu/xr-day**. ∎

# Endowment for K-12 outreach

PROFESSOR DAVID AND LISA MCDONALD ESTABLISH NEW ENDOWMENT FUND TO INTRODUCE THE NEXT GENERATION OF STUDENTS TO HCDE

Ensuring a diverse, passionate, and well-prepared pipeline of students into the Department of Human Centered Design & Engineering requires a sustained effort to inspire interest and understanding of the user-centered design process and engineering in middle and high school students. Through outreach, HCDE is introducing K-12 students to engineering professions related to HCDE's degrees and how these professions might align with their interests and abilities. In 2019, Professor David McDonald (Department Chair 2014-2019) and his wife Lisa McDonald established an endowed fund to support HCDE's K-12 outreach initiatives in perpetuity.

"I consider HCDE's K-12 outreach efforts one of the very best things I was able to launch in my time as Department Chair," McDonald said. "The summer I started as Chair, HCDE faculty member Andy Davidson came to my office and pitched having our own HCDE students visit middle schools and high schools to introduce young people to HCDE methods through design charettes. I might not always have brilliant ideas, but I recognized this one."

Over the past five years, Davidson has led dozens of teams of HCDE students in the design and facilitation of outreach efforts, by now reaching thousands of young learners across the state of Washington.

"Building the broader UX field, increasing participation, all through helping students understand human-centered design early on—it is an obvious win for the Department," McDonald said. "It is amazing to see the impact that these outreach efforts have on both the younger students and our own HCDE students."

A key component of HCDE's outreach program is that it empowers current HCDE students to develop and teach outreach workshops for younger students. The workshops, taking the form of a design charette, are fast-paced, hands-on, and are customized for each group of participants. Activities are centered around foundational aspects of the user-centered design process, including design thinking, user research, and prototyping. The charettes are tailored to fit the needs and interests of the students and can be adapted to suit different grade levels and classroom settings.

"It was easy to settle on establishing the HCDE K-12 Outreach Endowment," McDonald said. "I feel that one of the best ways to help middle and high schoolers understand our field is by having a grounded design experience that the design charettes provide."

"My hope is that the endowment will provide support for the ongoing efforts of faculty and students by creating an institutionalized backing to help make sure there is support to continue these important efforts," McDonald said. "I would love to see both HCDE's outreach efforts and the endowment grow—and with time, I'm certain they will." ∎

+

**JOIN THE MCDONALDS IN INVESTING IN THE NEXT GENERATION OF HCDE STUDENTS.** TO MAKE A GIFT TO THE K-12 OUTREACH ENDOWMENT, CONTACT ZOE BARTHOLOMEW AT ZFINNB@UW.EDU OR CALL 206.221.5072.

# Alumni Leadership Board

The Department of Human Centered Design & Engineering formed an Alumni Leadership Board in January 2019. The new board brings together alumni who have a desire to give back to the next generation of HCDE graduates and build the HCDE network for years to come.
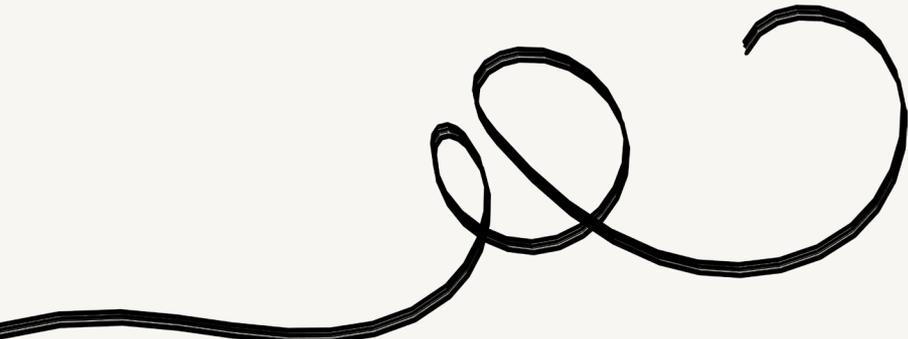
The board is charged with discovering new avenues for alumni and student community building, career mentoring, and industry skill-sharing outside the academic curriculum.

"We are out every day in the working world and seeing human-centered design applied in our jobs," said board Vice President Paula Chuchro. "We can help students who are entering the workplace today by sharing what we are learning so far."

The board meets twice a month and operates with sub-committees to plan various endeavors, including continuing education, mentorship, resource sharing, and event planning.

At the annual HCDE Alumni BBQ in September 2019, the board organized an information-gathering activity to discover ways that the board can best support the department alumni. "Since the board is new, we are first trying to figure out who is part of our alumni community," said board member Kendall Avery. "We don't want to just implement things that we *think* other alumni want from us, we want to base our decisions in data." "It's a very

'inception moment,'" Chuchro joked. "It's HCDE alumni conducting human-centered design research among other HCDE alumni."

Now that the board has the beginning of a database, they are using it to form an understanding of what alumni wish to get from the alumni community, and how they want to give back.

In Spring 2019, Chuchro and Mike Berg, the inaugural board president, led a directed research group with HCDE students to conduct a study of HCDE career pathways. Students in the research group conducted surveys, analyzed data, and developed user personas and a journey map. The team found that many alumni want to be better connected with the department and with other alumni, but they don't know how to get started. "We are using all of this information to influence the way we reach alumni going forward," Berg said.

+

THE HCDE ALUMNI LEADERSHIP BOARD IS LAUNCHING A PUBLICATION SERIES FEATURING ARTICLES BY ALUMNI, FOR ALUMNI.

READ AND LEARN HOW TO CONTRIBUTE AT:

**BIT.LY/HCDE-ALUMNI**

Another question to emerge from the research group is how to engage alumni who are geographically dispersed. To address the location barrier, the board is launching an online publishing platform to feature articles written by alumni, targeted to other alumni and current students. Topics may include career-seeking tips such as interviewing, negotiating, and portfolio building; on-the-job strategies for research and design projects; and emerging issues that people are experiencing in the field.

The board will begin accepting applications for new members in 2020. Board members commit to two years of service. "I'm really excited what's to come," said board member Gary Anderson. "For us, we've been building this plane as we've been flying it. But by now, we are prepared to onboard new members efficiently and help build off what we have started this year."

The board wants to thank Liz Young, HCDE's former Outreach & Events Manager, for helping form the Alumni Leadership Board. "We wouldn't be here today without Liz's leadership and dedication to bringing us all together," Berg said. ■

+ HCDE ACCEPTS NEW MEMBER APPLICATIONS EACH YEAR. BOARD MEMBERS COMMIT TO TWO YEARS OF SERVICE ON THE BOARD. DETAILS AT HCDE.UW.EDU/ALUMNI-BOARD

# Inaugural alumni board members

**2019-2020**

Sharla Akers
BS, 2016

Gary J. Anderson
MS, 2016

Kendall Avery
BS, 2016

Michael Berg
MS, 2009

Nathan Bilbao
BS, 2011

Hasani Burns
MS, 2015

Matthew Carthum
MS, 2008

Paula Chuchro
MS, 2017

Matt Reynolds
MS, 2017

# Human-centered security and privacy

JING DE JONG-CHEN ESTABLISHES A FUTURE COMPUTING AND
SCIENCE ENDOWED FUND FOR HCDE

Jing de Jong-Chen, Senior Associate at the Center for Strategic and International Studies, has established an endowed fund to support the Department of Human Centered Design & Engineering in developing new programs related to human-centered security and privacy. This gift will allow HCDE to launch new initiatives including bringing security and privacy experts to campus for panel discussions, lecturers, or workshops; building a new research agenda around human-centered security and privacy at the UW; and connecting with organizations in the US and overseas that have key interests in the field.

Bringing more human-centered theory and design to the field of usable security and privacy is critical to Jing.

With rapid adoption of new technologies including Artificial Intelligence and Internet of Things in both public and commercial settings, both critical infrastructures and commercial services will face new types of cybersecurity threats globally

According to Jing, it is no longer enough for the security and privacy communities to respond to the existing known types of malwares, data thefts and privacy violations.  The focus for the government, industry and academic organizations needs to shift from a technology centric approach to a human-centered approach to understand the groups and the people who are behind these attacks. The  science and technology research and development must serve the human needs including ease of use, heightened awareness of security and privacy threats. A new frontier of AI security and privacy will benefit from incorporating HCDE principles so that protection is a central part of machine learning process.

Jing considers the HCDE program at University of Washington a leader in this space. She sees a talent deficit in the area of cybersecurity and privacy today, and hopes that with this endowment the department will be able to expand its impact by offering opportunities for students to gain insights and be inspired by the leading experts in the field of cybersecurity and privacy.

Jing is the founder and CEO of CrossAvenue International and a Senior Associate of Technology Policy Program at the Center for Strategic and International Studies, where she focuses on cybersecurity and technology policy advisory and advocacy. Previously, Jing was the partner and general manager of global cybersecurity strategy at Microsoft Corporation, where she worked in the areas of cybersecurity policy, security standards and partnership development. Jing served as vice president and the board director of the Trusted Computing Group for over a



↑
JING DE JONG CHEN IS AN INDUSTRY VETERAN WITH OVER 15 YEARS OF CYBER SECURITY AND MULTINATIONAL EXECUTIVE EXPERIENCE.

decade and led multiple cross industry efforts for the advancement of trusted computing and global supply chain trust. Jing also serves as the board advisor of the Wilson Center's Science and Technology Innovation Program, Board Advisor of the Executive Women's Forum and was the founder of Microsoft Women in Security. ∎

# COMBATING THE SPREAD OF MISINFORMATION & DISINFORMATION

THE NEW CENTER FOR AN INFORMED PUBLIC IS FORMED TO  RESIST STRATEGIC MISINFORMATION, PROMOTE AN INFORMED SOCIETY, AND STRENGTHEN DEMOCRATIC DISCOURSE

## Kate Starbird, Associate Professor in HCDE, is a Co-Principal Investigator at the new Center for an Informed Public

Today's information landscape has created a rapid and dramatic shift in the ways people produce, consume, and share news and participate in public discourse. While digital and social media enable new forms of engagement and bring diverse voices to the conversation, they also create space for misinformation and disinformation to spread.

A growing body of research is aimed at studying how the modern information landscape is shifting, but more needs to be understood about how this evolution is affecting our society.

Thanks to a $5 million grant from the John S. and James L. Knight Foundation, the University of Washington is establishing the Center for an Informed Public — a new cross-disciplinary research center focused on resisting strategic misinformation, promoting an informed society, and strengthening democratic discourse.

Knight Foundation's support at the University of Washington is part of a $50 million commitment at 11 American universities and research institutions to develop a new field of research around

technology's impact on democracy. The center is also funded by a $600,000 award from the William and Flora Hewlett Foundation. It is part of the Hewlett Foundation's $10 million effort to examine and combat digital disinformation's impact on U.S. democracy and elections, announced in 2018.

"Our society is facing growing challenges related to misinformation, disinformation, and other strategic manipulation of information spaces," said Kate Starbird, Associate Professor in HCDE and one of the Co-Principal Investigators of the new Center. "Here at UW, we are thrilled to be on the ground floor of the creation of a new, interdisciplinary field to better understand and address these challenges — to learn more about how and why we are vulnerable and to develop strategies for better defending ourselves."

The center, housed in the Information School, brings together researchers and stakeholders from across the University. Starbird is one of five founding Principal Investigators. Associate Professor Jevin West from the Information School is the inaugural director, and other Co-Principal Investigators are Emma Spiro and Chris Coward from the iSchool, and Ryan Calo from the School of Law.

The infrastructure of the new center will support projects and collaborations aimed at developing solutions in the areas of education, outreach, policy, and technology design.

Starbird directs HCDE's Emerging Capacities of Mass Participation (emCOMP) Laboratory, a leading research lab focused on the online spread of misinformation and disinformation. In recent years, emCOMP researchers have made international news for their work uncovering strategic information

operations both in the U.S. and abroad.

In a 2017 study, emCOMP researchers mapped how politically-motivated disinformation flows through the "alternative media" ecosystem, exposing content-sharing techniques that serve to overwhelm an individual's capacity to determine truth from lie.



↑
HCDE PHD STUDENTS MELINDA MCCLURE HAUGHEY AND TOM WILSON RESEARCH THE SPREAD OF MISINFORMATION AND DISINFORMATION IN STARBIRD'S EMERGING CAPACITIES OF MASS PARTICIPATION (EMCOMP) LAB



↑
STARBIRD, CENTER, WITH HCDE PROFESSOR JULIE KIENTZ AND UW PRESIDENT ANA MARI CAUCE AT THE CENTER LAUNCH EVENT ON DECEMBER 3, 2019

In 2018, Starbird's team published findings that identified Russian trolls acting to spread disinformation in both "sides" of politically polarized Twitter conversations leading up to the U.S. elections in 2016. "Together, these tactics — fostering doubt and distrust in information systems, and sowing division — work to undermine democratic discourse," Starbird said.

HCDE PhD students Melinda McClure Haughey and Tom Wilson, researchers with Starbird in the emCOMP lab, are looking forward to the new opportunities and resources the center will bring to the University. "Using the expanded infrastructure and collaboration opportunities within the new center, we will be able to accelerate our research to broaden its impact and better inform the public," said Haughey.

Haughey has been researching how journalists navigate the modern information landscape. "In addition to needing to process, analyze, and make sense of large amounts of online data, journalists today encounter media manipulation — the artful amplification of certain issues in order to get journalists to cover them," she said. "As the impact of misinformation and disinformation online grows, this is the perfect time to create this new center."

Wilson has been working for the last three years to understand how social media platforms are being leveraged in online information operations — efforts to distort online discourse and manipulate public opinion through methods such as the dissemination of disinformation. "It's exciting to consider the learning opportunities that the new center will offer and the resources it will provide students and emerging scholars," he said.

"I am thrilled to be part of this initiative and to be working toward strengthening the democratic institutions that foster an informed society," Starbird said. "In the near term, we hope to develop methods of countering mis- and disinformation — to help rebuild trust in information systems by making these systems more trustworthy."

The center launch event in December 2019 brought together the presidents from both the University of Washington and Washington State University, who signed a declaration committing both institutions in a statewide partnership.

"In a politically divided state, if we can do it right here, maybe we can get this right for the rest of the country," said Center Director Jevin West. ∎



STARBIRD AND HER FELLOW PRINCIPAL INVESTIGATORS LED A PANEL DISCUSSION AT THE CENTER FOR INFORMED PUBLIC LAUNCH EVENT, DECEMBER 3 2019

"Disinformation is an attack on the common ground that we need to share in order to govern ourselves... the solution is not to disingage, it's to learn how to better engage."

KATE STARBIRD, HCDE ASSOCIATE PROFESSOR

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# HCDE Academics

### Bachelor of Science in HCDE

The Bachelor of Science in HCDE enables students to build a strong foundation in designing user experiences and interfaces, creating information visualizations, conducting user research, designing for the web, and building web technologies through a deep understanding of people and their contexts. Students graduate from the program with engineering degrees. More at **hcde.uw.edu/bs.**

### Master of Science in HCDE

The Master of Science (MS) in HCDE prepares students for professional and leadership roles in user experience research and design, interface design, interaction design and prototyping, product design, human-computer interaction, human centered engineering, and program management. HCDE MS 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 (UCD) Certificate is an evening, graduate-level program for professionals who want to explore a wide range of issues in user-centered design. Students learn methods for planning and developing intuitive, user-friendly product designs. This four-course certificate 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 (PhD) in HCDE provides unparalleled depth and experience for students interested in studying the conception, design, implementation, evaluation, and effects of technologies. The HCDE doctoral 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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