



Annual Impact Report Year 4

August 1, 2024

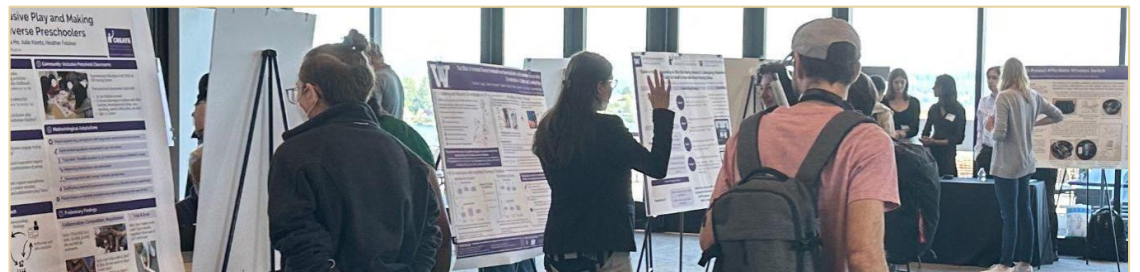
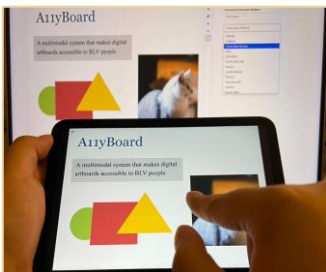
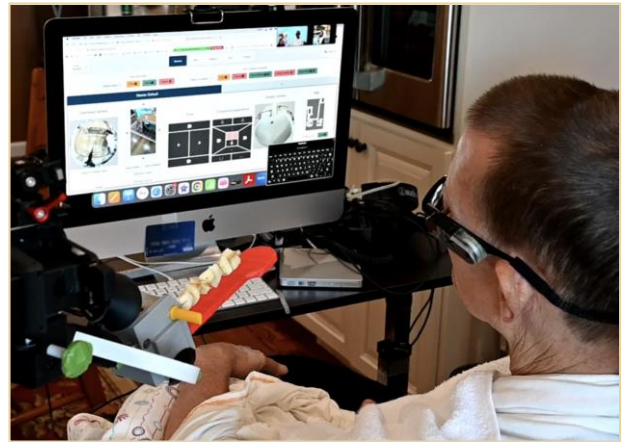
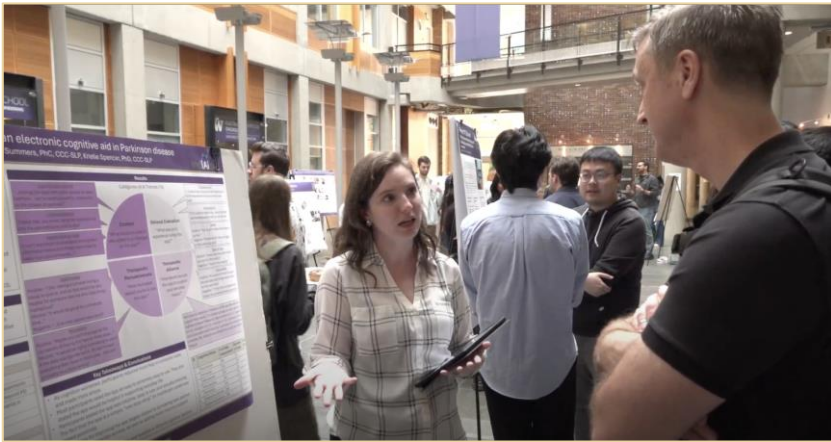


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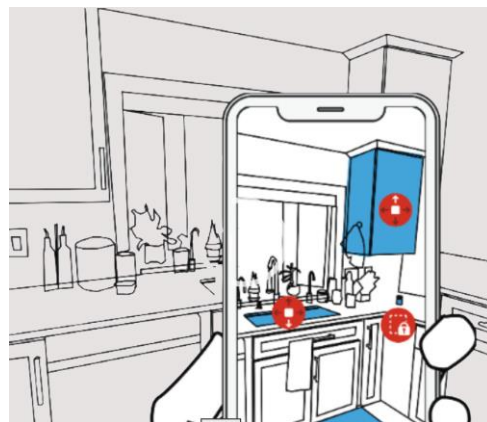
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Dear CREATE Community,

In times of great technological change, disability and accessibility are often overlooked in the rush to the innovation starting line. The arrival of a new generation of AI tools is one of these times: they have created new risks for those of us with disabilities, and even more so for those of us with multiple intersecting marginalized identities. It is with these risks in mind that CREATE submitted and received funding for leading a new Rehabilitation Engineering Research Center, a five-year effort to develop inclusive, responsible AI and to understand the risks and opportunities that AI brings (see sidebar). We're so appreciative of your support for us, and we're excited about the research to come.

As we are in the third decade since the passage of the ADA, and this year marks the 50th anniversary of Section 504, it also behooves us to reflect on and look forward to changes that are long overdue in more mundane arenas. This year has been filled with events celebrating the 504 anniversary and planning for necessary change with the new Department of Justice ruling on the ADA, which has profound, positive implications for our ability to ensure an equitable education for disabled students. We look forward to the coming year of hard work implementing that rule.

CREATE continues to evolve to meet the demands of the growing and ever-changing field of accessible technology and to better serve our many communities—students, faculty, and community and industry partners. This year saw the addition of a new role to CREATE's leadership: Dr. Olivia Banner joined us as our Director of Strategy and Operations. Associate Director Mark Harniss stepped into the position of CREATE's Director of Education. Our faculty has grown from our original nine founders to include more than twenty people. Finally, we sent into the world five newly minted Ph.D.s, all of them champions of accessibility. Together we move forward in our mission and our commitment to CREATEing a bright, accessible future for all!

—Jennifer Mankoff, Director, CREATE



CREATE awarded a \$4.6 million RERC grant!

CREATE has received a five-year, \$4.6 million grant from the National Institute on Disability, Independent Living, and Rehabilitation Research, a program of the Administration for Community Living, U.S. Department of Health and Human Services, to lead a new Rehabilitation Engineering Research Center (RERC). Our proposed work includes research into AI risks and opportunities for people with disabilities in hiring, text simplification, slideshow creation, fabrication, and more, all with support from our amazing CREATE partners.

People of CREATE

New Leadership and Other News

CREATE welcomed a new Advisory Board member!

Ebele Okoli, M.P.H., is Business Program Manager for Microsoft's Accessibility Innovation Program and Microsoft's Mental Health and Intersectionality Program Lead. This year, she officially joined CREATE's Advisory Board. She joins our continuing Advisory Board members Jonathan Lazar, Ph.D., JD; ChrisTiana ObeySumner, MPA, MPL; and Amy Hurst, Ph.D.



We also welcomed our new Director of Strategy and Operations!

Olivia Banner, Ph.D., was previously Associate Professor of Critical Media Studies at the University of Texas at Dallas. Dr. Banner's fields of expertise are critical disability studies, feminist technology studies, and cultural studies. She has published widely in these fields, including a recent article in *Disability Studies Quarterly* and a forthcoming book on histories of counter-psychiatric media and technologies.



We welcomed our new Director of Education!

Mark Harniss, Ph.D., is an Associate Professor in the Department of Rehabilitation Medicine and an Associate Director of CREATE. See more about Harniss's goals as CREATE's Director of Education on [page 8](#).



We hired a new CREATE ARRT postdoctoral fellow!

Stacy Hsueh, Ph.D., advised by Mankoff and Anat Caspi, is engaged in three projects: designing with medical waste materials with people with disabilities; a low-cost approach to tactile graphics display using magnetic materials; and studying the intersections of race, disability, and assistive device provision with CREATE community partner Open Doors for Multicultural Families.



Research

CREATE's mission is *to make technology accessible and make the world accessible through technology*. We support research that addresses accessibility needs in the disability community, including through CREATE's grant mechanisms. CREATE's research benefits from the range of expertise of its faculty and students, who come from the iSchool, Mechanical Engineering, Rehabilitation Medicine, Human-Centered Design, Disability Studies, and Computer Science.

57

Papers by CREATE faculty, students, and postdocs this year

175+

Papers by CREATE faculty, students, and postdocs since Year 1



CREATE faculty, students, and postdoctoral fellows continued to publish and present their research in high-visibility venues.

CREATE faculty and students produced 57 publications related to technology and accessibility. More than half of those publications emerged from CREATE funding.

CREATE and I-LABS completed their joint investigation into early childhood mobility aids and their effects on children's neurological development and have begun publishing their results.

CREATE funded three Race, Disability, and Technology minigrants. Their research is ongoing. See ["Research Highlights" \(p. 6\)](#) for more information about those projects.

Research Accolades

- **CREATE faculty Amy J. Ko, Professor in the iSchool**, was recognized as a Distinguished Member of the Association for Computing Machinery.
- A paper co-authored by **CREATE Ph.D. student Ather Sharif** and **CREATE faculty Katharina Reinecke and Jacob O. Wobbrock**, about improving the functionality of VoxLens, received the Web4All Best Technical Paper Award.
- **CREATE Associate Director Caspi** was awarded the 2023 Human Rights Educator Award from the Seattle Human Rights Commission.

Research Highlights

Race, Disability, and Technology

CREATE's cross-campus Race, Disability, and Technology (RDT) Initiative, established to support emerging research, recently awarded three RDT minigrants: to Professor Amy Ko for work on an accessible programming language; to Ph.D. student Aashaka Desai for work on multilingual captioning; and to Ph.D. student Aaleyah Lewis for work examining the experiences of Black people with disabilities who use accessibility technologies. We thank the Allen School and Population Health Initiative for contributing funds for this efforts.

Wordplay

Learn to code by animating words, emojis, and symbols from the world's languages, whatever your abilities.

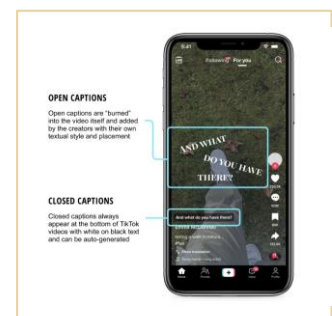
Early Childhood Mobility



We collected thousands of data points as ten toddlers and their families completed in-lab driving sessions with powered wheelchairs. Our final analysis of this data shows increases in cognition, receptive and expressive communication, fine motor skills, and socio-emotional development. All children improved at least one level in their power mobility-driving proficiency. Caregivers who described the need for access to mobility also expressed joy in observing the autonomy that emerged from power mobility access. We are grateful to our research partners at I-LABS, as well as the private donors who made this work possible.

Deaf/Hard of Hearing and Accessibility

CREATE researchers continued to advance state-of-the-art research on accessible technology and the D/HH community. Former CREATE postdoc Maitraye Das and CREATE Associate Director Leah Findlater published findings about disabled professionals' experiences of collaborative ideation tools. Ph.D. student Emma McDonnell, Findlater, and CREATE Associate Director Jon Froehlich studied captioning practices on TikTok and offered steps toward a standard for user-generated captioning. With CREATE Associate Director James Fogarty, Ph.D. student Anand Mittal published work on a videoconferencing system designed to support mixed-hearing groups, and McDonnell defended her dissertation on design possibilities when mixed-ability groups imagine accessibility together. Desai published a number of papers on ASL as part of her collaboration with Microsoft, and she presented her work on speechreading that she undertook with Mankoff and CREATE Founding Director Professor Emeritus Richard Ladner.



Research Spotlight

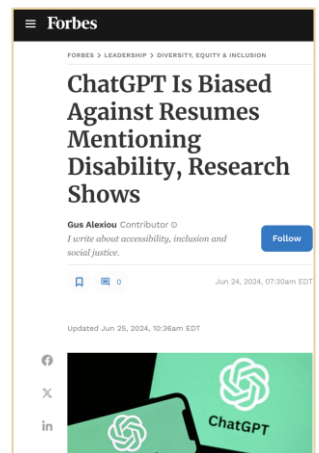
AI, GAI, and Accessible Technologies

In the past few years, CREATE researchers have investigated the promise of AI to scale up accessible features. For example, CREATE faculty Julie Kientz is part of a multidisciplinary team developing AI to address the gap in speech and language pathologists' capacity to provide individualized services for children protected under the Individuals with Disabilities Education Act.

More recently, CREATE researchers have explored whether Generative AI (GAI) has a less positive side: automating bias, for example, or making technology less accessible. Last year, CREATE researchers undertook an autoethnography of their GAI use. They discovered many opportunities to incorporate GAI in support of accessibility, but noted concurrent issues, including ableist results, verifiability issues, and bias. This year, Ph.D. student Kate Glazko investigated how a GAI (ChatGPT) ranked resumes that indicated a jobseeker was disabled against resumes that did not. In the first iteration of the study, the resumes indicating disability scored lower than those absent of markers of disability. In the second iteration, the GAI was instructed to be "disability-aware" and then asked again to rank the resumes. While the scores improved somewhat, still the disabled resumes ranked lower than their non-disabled counterparts. At a time of mounting concerns about AI, it is not surprising that this study was widely reported in the popular press.

Other research has demonstrated how crucial it is to draw from the lived experiences of people with disabilities. With Richard Ladner, Ph.D. student Aashaka Desai performed a systematic review of more than 100 papers on AI and ASL and found that the underlying research questions asked did not reflect Deaf stakeholders' understandings. Ladner, Desai, and other team members are working with Microsoft to crowdsource an ASL dataset with the consenting participation of the Deaf community; this ASL dataset can serve as a baseline for machine learning researchers.

CREATE's research highlights that technologies are never neutral: they are socio-technical systems that often reflect ableist cultural and social biases. People with lived experience of disability should be at the forefront of their design. With our commitment to research that is guided by people with disabilities, whether our community partners or the many disabled researchers in CREATE, CREATE leads the way in ensuring new technologies support access and accessibility.



Education

CREATE works to ensure that the next generation of developers, engineers, and innovators are champions of accessibility. We support this aim through curriculum development, educational events, grants for student research, and faculty commitment to advancing the field of pedagogy and accessibility. Our new Director of Education, Mark Harniss, has focused on CREATE's collaboration with HuskyADAPT and on exploring a minor in accessibility.



We awarded two student minigrants this year: to Dale Summers (above), Ph. C., Department of Speech and Hearing Sciences, for research on an electronic cognitive aid for persons with mild Parkinson disease dementia; and to Amal Navavati, Ph.D. candidate, Allen School, to deploy a customizable robot-assisted feeding system.

CREATE includes graduate and undergraduate students, who all contribute to our vision of a future designed by, for, and with people with disabilities.

CREATE faculty and students showcase their pedagogical expertise in *Teaching Accessible Computing*. Co-edited by Allanah Olsen, Amy Ko, and Richard Ladner, the book highlights what to teach about accessible computing and *how* to teach it. This born-accessible digital book includes chapters by CREATE faculty and students, among them Mankoff, Kelly Avery Mack, Ko, and Annuska Zoloymi.

For Global Accessibility Awareness Day 2024, Ph.D. students Mack and Emma McDonnell led a workshop about creating accessible presentations and about the disability activist histories that have advocated for accessibility as a civil right and a design necessity.

Student Resource Organization: HuskyADAPT

HuskyADAPT continues to expand. The Toy Adaptation program organized 16 adapting events (three external to UW), certified 23 Lead Toy Adapters, and provided switch-adapted toys to 730 people. The Design program enrolled 36 students who worked on 6 community-driven projects to create assistive technologies and, in the process, developed their design-thinking skills. The Outreach program raised awareness of assistive technology via workshops, seminars, and public demonstrations. Through collaboration with Seattle's accessibility community, HuskyADAPT promoted accessible play and design technologies.



CREATE Congratulates 5 Graduating Ph.D.s!

Rachel Franz, Ph.D., Information School. Dissertation Title: Supporting the Design, Selection, and Evaluation of Accessible Interaction Techniques for Virtual Reality. Advised by Jacob O. Wobbrock. Franz will join Hong Kong University of Science and Technology (Guangzhou) as assistant professor in Fall 2024.



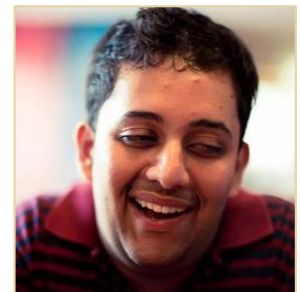
Kelly Avery Mack, Ph.D., Computer Science. Dissertation Title: Understanding, Designing, and Building Adaptable Technology for Fluctuating Accessibility Needs in Group Settings. Advised by Mankoff. Mack will be starting a postdoctoral position with Leah Findlater this fall.



Emma McDonnell, Ph.D., Human-Centered Design and Engineering. Dissertation Title: Understanding, Designing, and Theorizing Collective Access Approaches to Captioning-Mediated Communication. Advised by Findlater.



Venkatesh Potluri, Ph.D., Computer Science. Dissertation Title: A Paradigm Shift in Nonvisual Programming. Advised by Mankoff. Potluri will join the University of Michigan as an assistant professor in the Information School in Fall 2024.



Ather Sharif, Ph.D., Computer Science. Dissertation Title: Improving the Accessibility of Online Data Visualizations for Screen-Reader Users and Visualization Creators. Advised by Wobbrock. Through the UW Bonderman Travel Fellowship, Sharif will spend the next year studying disability rights history and physical infrastructure in several countries in South America and in East Asia.

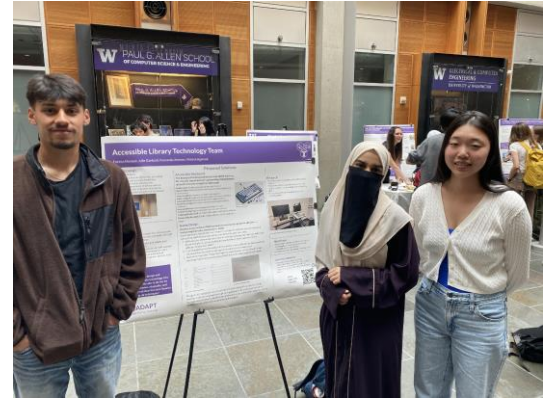


Events

CREATE's event programming spans both its educational and its translational missions. Students, faculty, and community members come together to learn from each other.

At two CREATE research showcases, more than 40 undergraduate and graduate students presented research posters and live demos of their accessibility work and discussed it with faculty, community partners, and other interested students who attended.

We also sponsored or co-hosted five speakers this year, including two in the UW Public Lectures series, held at Town Hall Seattle. CREATE Ph.D. students Aashaka Desai and Aaleyah Lewis moderated a conversation with disability justice activist and founder of Sins Invalid Patty Berne, and Mankoff hosted a conversation with disability activist and author Alice Wong.



Race, Disability, and Technology

CREATE held two events aligned with the newly funded Race, Disability, and Technology initiative. Our Fall '23 seminar read *Year of the Tiger: An Activist's Life*, by disability justice leader Alice Wong. In Winter quarter, CREATE held a meeting to share updates about funded research projects and discuss attendees' research needs.

Hackfest on AI + Accessibility

In March, the AI + Accessibility Hackfest brought together community members, organizations, industry partners, and Seattle locals to learn about using AI to make the world more inclusive and accessible to people with disabilities.

We had 100 registrants for this three-day Hackfest. On the last night, a four-person judging panel with representatives from industry, academia, and community partners reviewed participants' projects. We were delighted by the range of projects, which included AI to improve web browsing accessibility, to personalize health monitoring, and to support K-12 students.



Translation

Our translation mission is to increase uptake of CREATE research products—including new knowledge, methods, software, data, and apps in community, industry, and policy settings—and to enhance CREATE research through community and industry input.

Connections

CREATE's memberships spans:

- 4 continents
- 7 countries
- 13 U.S. states
- 25 universities
- 35 campus, community, and industry partnerships

“CREATE has been a great place to meet other accessibility researchers and get in contact with disabled people in our community. As someone who tries to align my research with community needs and desires, this connection to the Seattle disability community is invaluable.” — Kelly Avery Mack, Ph.D.

Engagement

CREATE's events and programming brought together students, faculty, and staff across the UW from:

- All 3 campuses
- 9 schools/colleges
- 32 departments and centers

CREATE awarded two Translation Minigrants this year: to Ph.D. student Mia Hoffman (Mechanical Engineering), to develop an affordable switch kit with clinicians and families of children with disabilities that will support early intervention services and developmentally appropriate digital media for play and participation; and to CREATE Postdoctoral Fellow Sasha Portnova, for professional transcriptions of episodes of *Gears of Progress*, a podcast that covers research in biomechanical engineering in discussion with disability community members.

Community Day

Community Day 2024 was a day of exploration and innovation. We began with two panel discussions that brought together experts from government, industry, academia, and community nonprofits to discuss topics chosen from suggestions by CREATE members. Our first panel explored the intersection of disability and data, with a focus on access and inequalities. Our second panel discussed the recent changes to Title II of the Americans with Disabilities Act and how they may affect education and government services. The afternoon concluded in the Paul G. Allen Center Atrium where students from different schools and at different stages of their degree programs showcased their accessibility work.

Partnerships

CREATE continues to establish partnerships with other UW campus groups, industry leaders, and community organizations. This year we welcomed a new campus partner, the D Center, and we strengthened our relationships with campus partners DUB, the Allen School, and HuskyADAPT through co-sponsorship of speakers and events. We also established a quarterly meeting among the leaders of UW accessibility centers, to foster community and to share information. We continue to expand our community partner and industry affiliates programs while adding clarity through the implementation of a tiered system of engagement.

Community Partner: PAVE

“Elevating information, resources, and cross-promotion are three powerful outcomes of our community partnership with CREATE. Empowering and giving voice to individuals, youth, and families impacted by disabilities in WA included CREATE listening to our constituents’ lived experience and wisdom. We value our collaboration.” —Tracy Kahlo, Executive Director of PAVE

Community Stakeholders Group

This year saw the formation of our Community Stakeholder Group. Comprised of representatives from our Community Partners Program, the group meets twice a year to review community-engaged research, provide feedback, and help define priorities. In the past year, our partnerships have enabled us to provide study recruitment assistance to eight researchers, secure subject matter experts for panels, expand informational offerings to participants at events, and demonstrate community support for our grant efforts.



18

Active community partnerships

55%

Increase in community partnerships this year



Supporting Our Partners

CREATE's support for its partners includes:

- Participating in resource expos
- Providing accessibility audits of websites
- Facilitating connections to other local organizations
- Increasing visibility for partner organizations through our Community Partners web page and the new "Partner Spotlight" feature in our quarterly digest

Advocacy

Policy: CREATE faculty have continued to write and disseminate advocacy-oriented pieces. This year, CREATE members submitted a sixty-page comment, co-authored with colleagues across the nation, responding to the Department of Health and Human Services Office for Civil Rights' proposed update to the HHS regulations implementing Section 504 of the Rehabilitation Act of 1973, which prohibits disability discrimination by recipients of federal funding.

They also co-authored a response to the Department of Justice's proposed revision to Title II of the ADA. The final revised rule came out this spring and reflected comments found in the CREATE co-authored response, specifically that password-protected course content, such as that found in learning-management systems, must be accessible.

Campus: CREATE Director Mankoff was one of several campus faculty and staff who established the UW Disability Staff and Faculty Association (DSFA). The newly formed affinity group has a mission to foster community connections and cultivate empowerment and belonging for all.

Resources: The CREATE website now includes dedicated resource pages. "A11y in Action" includes tools and resources to help you make courses, documents, conferences, seminars, and meetings accessible. "Resources for Disabled Academics" gathers information about funding opportunities, campus organizations, and other support services relevant to students, faculty, and community partners who are disabled. "Policy and Advocacy" highlights recent news about CREATE efforts.



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Looking Forward to Year 5!

Research

This year, our research on AI + Accessibility achieved a high degree of recognition, including through coverage in the popular press and through the awarding of excellence that our RERC grant represents. We continued our cross-campus initiative to support research in race, disability, and technology, as well as of research into early childhood accessibility. In Year 5, as we continue to support research in these areas we hope also to add new directions, such as sustainability and LGBTQIA+ access experiences, to our body of work. In all our research, CREATE will continue to combine basic science with innovation and remain at the cutting edge of issues most affecting people with disabilities. We are enthused that our five-year RERC grant award will sustain this cutting-edge approach to AI, with research conducted at a center run by and for people with disabilities.

Education

Our goals from last year included an ongoing commitment to the CREATE seminar; co-sponsoring lectures; enriching activities for CREATE undergraduate and graduate students; and ongoing advocacy for campus accessibility. In the coming year, we aim to expand our student minigrant awards and to explore expanding our existing accessibility courses into a degree option. It is imperative that we not only research accessibility but also graduate people who can bring an accessibility mindset to all areas of technology development.

Translation

In the last year, CREATE met its translation goals of bringing research to the attention of industry, community, and policy leaders and of developing its community partnerships and industry affiliates programs. In 2024–2025, we will continue to develop these programs and, through expanded collaboration and communication with our industry partners, bring renewed focus to our translational mission of turning research into real world results.

LEARN MORE!

Find out more about CREATE: <https://create.uw.edu>