UNIVERSITY of WASHINGTON

CENTER FOR RESEARCH AND EDUCATION ON ACCESSIBLE TECHNOLOGY AND EXPERIENCES

RESEARCH SPOTLIGHT: Mobility

Our Mission

To make technology accessible and to make the world accessible through technology

URBAN MOBILITY

For individuals with a mobility disability, sidewalks play a crucial role in independence, quality of life, and overall physical activity. However, unlike their road counterparts, there is a lack of information about sidewalk features that impact pedestrian mobility. CREATE is supporting important work in urban mobility from sidewalks to rail and beyond.

Project Sidewalk

Led by: Jon Froehlich | Associate Director, CREATE

Using a combination of crowdsourcing, computer vision, and online map imagery, Project Sidewalk has labeled over 1 million sidewalk accessibility issues in over 10 cities worldwide. labels are used to improve city planning, build accessibility-aware mapping tools, and train machine learning algorithms to automatically find accessibility issues.

OpenSidewalks

Led by: Anat Caspi | Associate Director, CREATE

OpenSidewalks seeks to make pedestrian ways, like sidewalks, safer to navigate by creating systems to gather the data that is needed to provide users with the detailed information they really need such as curb cuts, steepness, width, surface, obstacles, and crossings.

AccessMap Mobile App

Led by: Anat Caspi | Associate Director, CREATE

AccessMap provides customized accessible sidewalk and footpath routing directions based on your personal mobility profile. This can benefit anyone but is particularly designed to address the informational needs of people with mobility limitations.

UnlockedMaps for Urban Rail Transit

Led by: Ather Sharif | CREATE Ph.D. student

A web-based map that allows users to see in real time how accessible rail transit stations are in six North American cities, including Seattle, Toronto, New York and the Bay Area. UnlockedMaps shows whether stations are accessible and if they are currently experiencing elevator outages.

EARLY CHILDHOOD

Early Access and the Brain

Led by: Kat Steele and Heather Feldner | Associate Directors, CREATE

This CREATE research initiative will demonstrate that early access to mobility technology is a critical asset for development and learning. It also contributes to CREATE's goal of understanding and addressing historical perceptions of disability and assistive technology which, despite laws protecting individuals' rights to mobility and technology, is still being used to justify exclusion.

Go Baby Go!

Co-directed by: Heather Feldner | Associate Director, CREATE

The UW Go Baby Go mobility and socialization project works to challenge outdated and harmful perceptions of disability and technology, and address inequities by providing customized, child-friendly mobility devices (such as ride-on cars) for young children with disabilities at no cost to families.

(Turn sheet over for more!)

VIRTUAL REALITY AND BEYOND

RASSAR: Room Accessibility and Safety Scan in Augmented Reality (AR)

Led by: Jon Froehlich | Associate Director, CREATE

RASSAR is a novel smartphone-based prototype for semi-automatically identifying, categorizing, and localizing indoor accessibility and safety issues. With RASSAR, the user holds out their phone and scans a space. The tool uses LiDAR and camera data, real-time machine learning, and AR to construct a real-time model of the 3D scene, attempts to identify and classify known accessibility and safety issues, and visualizes potential problems.

Mobility and Virtual Reality

Led by: Rachel Franz | CREATE Ph.D. student

Virtual reality is rapidly becoming a popular consumer technology. However, designers have not focused on ensuring that it is accessible for people with physical impairments. This research is a step forward in understanding how virtual reality is inaccessible and how to make it more accessible for people with disabilities. This research might influence future virtual reality products which would make virtual reality usable by this community.

Understanding Inclusivity in Hand-Tracking Tech

Led by: Sasha Portnova | CREATE Postdoctoral Fellow

While the over-the-counter hand-tracking technologies have been evaluated with people without disabilities, they have not been tested for the target group - individuals with upper-body disabilities. Researchers set out to understand how inclusive the hand-tracking is for people with disabilities, which has the potential to be implemented not only for hand therapy purposes but for device interactions and video gaming.

Spinal Stimulation for Walking and Autonomic Recovery

Led by: Kat Steele | Associate Director, CREATE in collaboration with Chet Moritz from the UW Center for Neurotechnology

The goal of this project is to develop real-world applications of this non-invasive cervical and lumbar spinal stimulation with physical therapy for long-term improvement of walking and standing in people with spinal cord injury and children with cerebral palsy.

Inclusivity of Device Interactions Via Biosignals

Led by: Momona Yamagami | CREATE Postdoc Fellow

The goal of this project is to understand how we can create inclusive device interactions for people with upper-body disabilities using biosignals, such as signals generated by the muscles or when the person moves their body parts. The idea is to provide a customizable interface for people with disabilities to interact with technology. The project also resulted in a large open-source database of biosignals of individuals with and without disabilities creating custom device interactions, such as clicking, zooming in/out, copying, panning, and more.

Want to know more?

You can learn more about **CREATE's Research Initiatives** by visiting our website:

You can also sign up for our **CREATE mailing lists** and find out about how the research happening through CREATE is making the world more accessible to all, learn about local events focused on accessibility issues, and stay on top of cutting-edge research that is making a difference in the lives of those with disabilities.