Access Computing
NEWS
from the Alliance for Access to Computing Careers

Increasing opportunities in computing for people with disabilities

The Ed-ICT International Network
By Sheryl Burgstahler, *AccessComputing* Co-PI

In the DO-IT Center (where DO-IT stands for Disabilities, Opportunities, Internetworking and Technology), one of the *AccessComputing* lead organizations I direct, we have a long history of working internationally to promote the success of people with disabilities in college studies and careers; the development and use of technology for people with disabilities; and the promotion of universal design of instruction, physical spaces, technology, and services.

AccessComputing is partnering with organizations from across the world in the Ed-ICT International Network to explore strategies to improve the design and delivery of technology for post secondary students with disabilities. I am leading the United States (US) team which includes Dan Comden and Hadi Rangin, accessible IT specialists at the University of Washington in Seattle. We are collaborating with

Highlights of this issue:

Engage in *AccessComputing*

Students with disabilities
- Internships
- E-mentoring
- *AccessComputing* Team

Educators & employers
- Host an intern
- Communities of practice
- E-mentoring
- Presentations
- Minigrants

When more citizens have access to computing opportunities, and when computing fields are enhanced by the perspectives of people with disabilities, we all benefit.

Find more information about these opportunities as well as videos, publications, and other resources on the *AccessComputing* website, *www.uw.edu/accesscomputing*.

three-person teams representing the United Kingdom (UK) (as project leader), Israel, Canada and Germany. The project is funded by the Leverhulme trust in the UK.

Over the next three years Ed-ICT is hosting symposiums in each of the five countries. The first symposium was in Seattle. Entitled Disabled Students, Information and Communication Technology (ICT), Post-Compulsory Education, and Employment: In Search of New Solutions, this meeting focused on effective models, frameworks, and approaches that use ICT to improve the engagement and success of students with disabilities in postsecondary education and challenging careers. Over twenty US delegates joined the Ed-ICT team of fifteen for the event. Participants included faculty who are part of *AccessComputing*, students with disabilities, and other leaders in the US.

During the Seattle Symposium, presenters discussed different models and frameworks and how they can be used to transform institutional practice. Presentations, panels, and small group discussions addressed important questions:

- What evidence is there that universal design is effective in various applications and contexts and with a variety of stakeholders? Can this model inform the practice of all relevant stakeholders within post-compulsory education?

- What other models, frameworks, or approaches exist, and which stakeholders are they aimed at?

- How do various models, frameworks, or approaches translate into practice?

Ed-ICT International Network Seattle Symposium Attendees.

AccessComputing will continue to partner in the Ed-ICT International Network to raise awareness about the importance of accessible ICT and explore the role that ICTs play (or could play) in creating or removing barriers for students in post-secondary education. The network will also examine how practices of educators and other stakeholders can craft successful and supportive relationships between learners with disabilities and those who develop, deploy, and support ICT.

Team Member Profile: Hannah Werbel

Hannah is a computer science major and in the interdisciplinary honors program at the University of Washington (UW). UW President Ana Mari Cauce recently presented Hannah with the UW President's Medalist award as the freshman recipient for the 2015-2016 academic year. Hannah was selected based on both her high achievement in academic performance as well as her extensive co- and extracurricular involvement.

During high school, Hannah interned with UW's Center for Sensorimotor Neural Engineering (CSNE). At the CSNE she analyzed data from computer interface experiments via computer scripts she had written. In college, she has worked as a

teaching assistant in a programming class. When not in class or researching, she is an active member of both the Husky Marching Band and the basketball pep band, where she plays piccolo.

Hannah has a passion for accessibility and she is the president of the Washington Association of Blind Students. She also works for DO-IT as a member of the ATeam, a group of student leaders on projects like *AccessComputing*, who share their experiences on panels, give input, and help plan events.

In an interview published by the UW Paul G Allen School of Computer Science and Engineering (CSE), Hannah explained why computer science is exciting to her:

Hannah works with a classmate on a computer science project.

"Thus far, the most inspiring thing for me is the challenge and rigor of the courses. I find the subject of computer science fascinating, and am constantly amazed at how much of it I don't know. The subject expands far past basic Java programming, and it is inspiring to me to see all of the potential and possibilities that lie ahead. There is so much about computer science that is still to be discovered and implemented. Tackling challenging problems and attempting to comprehend abstract ideas inspires me to engage with the topics even more. I've always enjoyed puzzles, and I view computer science as a giant mystery that I am coming closer and closer to understanding."

Hannah exemplifies excellence in her work and a compassionate, composed demeanor. We at *AccessComputing* congratulate her on an extraordinary year and look forward to continuing to engage with her in *AccessComputing* activities where she can help other students with disabilities achieve their goals in computing and information science fields of study, research, and employment.

To read about the UW President's Medalist award, visit *www.washington.edu/uaa/2017/02/24/2015-2016-presidents-medalists-announced/*.

To read the full interview by the UW CSE, visit *news.cs.washington.edu/2017/05/24/allen-school-undergraduate-hannah-werbel-marches-into-the-spotlight/*.

AccessComputing works with over 300 students with disabilities in computing fields. To learn more about how to join, go to *www.uw.edu/accesscomputing/get-involved*.

Carol Frieze Wins A. Nico Habermann Award

AccessComputing Partner Carol Frieze of Carnegie Mellon University (CMU) was awarded the Computing Research Association's (CRA's) 2017 A. Nico Habermann Award. The Habermann award is given to a person who has made outstanding contributions aimed at increasing the numbers and/or successes of underrepresented members in the computing research community.

Carol was recognized for devoting nearly two decades to promoting diversity and inclusiveness in computing. Throughout her career, she has worked with women and people with disabilities and students in K-12 education through graduate school. As the CRA said, "Carol has contributed valuable research towards understanding the challenges diverse populations face, and in many ways, her research has challenged the existing narrative in the field."

Carol is the Director of the CMU School of Computer Science (SCS) organizations Women@SCS and SCS4ALL. As a long-time partner of *AccessComputing*, Carol has received multiple minigrants to provide outreach program to students with disabilities, worked to integrate students with disabilities into her programs, and organized a capacity building institute for the CMU Community. In 2016, she was a recipient of the *AccessComputing* Capacity Building Award.
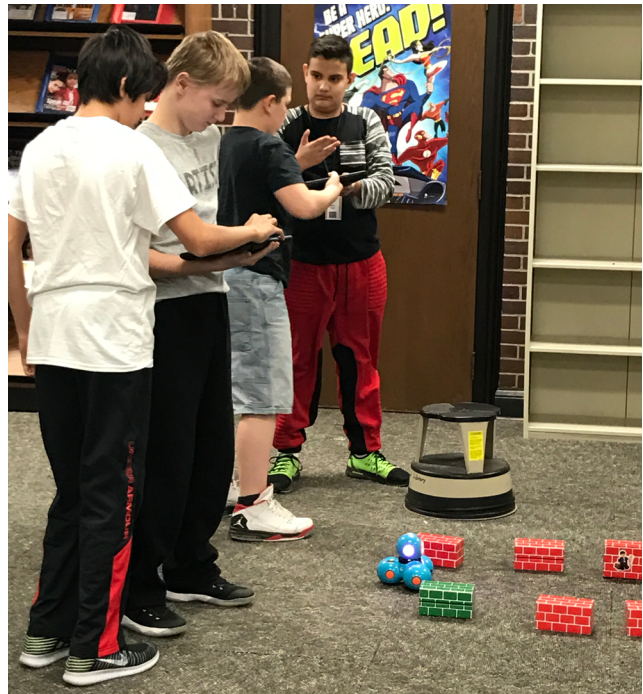
Deaf Kids Code participants test their code as they make a robotic car navigate an obstacle course.

Deaf Kids Code

By Shireen Hafeez, *AccessComputing* Collaborator

I direct a project called Deaf Kids Code (*www. deafkidscode.org/*). Deaf Kids Code promotes technology and computing skills to empower deaf and hard of hearing students socially and economically.

Our workshops provide middle school students the opportunity to experience hands-on coding activities. The program emphasizes that children who are exposed to such activities are more likely to have an interest in computing fields. One project we are currently working on is translating the coding videos from the Khan Academy (*www.khanacademy. org/*) to American Sign Language. Coding videos from the Khan Academy opens up learning opportunities to many students who are deaf so they can explore topics for future career opportunities. This work addresses one

of the issues that Deaf Kids Code addresses — the unemployment gap for those that are deaf or hard of hearing.

Through projects like Deaf Kids Code, it is possible to make computing and technology fields more diverse and inclusive. Not only that, but it ensures that people with disabilities can improve future technologies by making them more accessible.

The Deaf Kids Code home page.

Teach Access Activities at UW
By Amy Ko, *AccessComputing* Co-PI

The *AccessComputing* team has been working hard on increasing the number of computing graduates who have rigorous knowledge of accessibility. In partnership with Teach Access (*teachaccess.org*), we have been planning training workshops for faculty motivated to teach about accessibility. We shared some of our local efforts to expand accessibility instruction at the University of Washington at both the Special Interest Group on Computer Science Education (SIGCSE) 2017 conference in Seattle this past March, as well as through a recent issue of Association for Computing Machinery (ACM) Inroads magazine.

To support these efforts, we are also conducting a nation-wide survey of faculty efforts to teach accessibility in computer and information sciences departments, schools,

and colleges. The survey focuses on current practices, but also barriers to teaching about accessibility. We hope the data will help us better position Teach Access and *AccessComputing* efforts to increase access to rigorous knowledge about accessibility and access technologies. We look forward to sharing the results of this survey in a future issue of this newsletter.

Richard Ladner's DUB Seminar: Accessibility is Becoming Mainstream
By Kayla Brown, *AccessComputing* Staff

In January, *AccessComputing* PI, Richard Ladner, gave a Design Use Build (DUB) seminar at the University of Washington. DUB is a grassroots alliance of faculty, students, researchers, and industry partners interested in Human Computer Interaction & Design research and education at UW. The seminar Accessibility is Becoming Mainstream, is based on the keynote presentation he gave at the 18th International

Richard Ladner gives a presentation about accessible technology.

ACM SIGACCESS (ACM's Special Interest Group on Accessible Computing) Conference on Computers and Accessibility (called ASSETS 2016).

According to the World Health Organization there are one billion people in the world with significant disabilities. The view of disability has changed over the past 100 years and continues to change from primarily a medical issue to more of a social issue. Accessibility has become a professional field both in research and practice. Technologies originally intended for people with disabilities have become useful technologies for everyone. More and more technology for people with disabilities are being built into mainstream products. For example, screen readers are built into iOS and Android platforms. Increasing numbers of mainstream companies are requiring knowledge of accessibility best practices in their job descriptions. More and more accessibility research is appearing in mainstream conferences. Overall, accessibility is becoming mainstream in both research and practice.

To view the full video of the seminar, visit *dub. washington.edu/seminars/2017-01-11.html*.

Richard Ladner shows students how to code at an AccessComputing event.

2017 SIGCSE Conference
By Richard Ladner, *AccessComputing* PI

AccessComputing staff participated in several activities at the SIGCSE conference in Seattle March 8 – 11, 2017. The first was a pre-conference workshop: Making K-12 Computer Science Accessible. This workshop brought together about 50 individuals who are developing programming tools, curricula, books, and other materials with accessibility experts for interactive discussion about improving the accessibility of these materials. Areas for discussion included classroom pedagogy and universal design of instruction for inclusion, making block-based programming languages accessible, development of computing projects that focus on non-visual output, and others.

A Birds of a Feather (BoF) session titled Access to Computing Education for Students with Disabilities was held one evening. The BoF brought together individuals who were interested in increasing the representation of students with disabilities in computing and improving their success. Participants shared strategies and promising practices to help each other do a better job of including these students in our classes and research projects.

Matt May from Adobe and I presented a special session called "Teaching Accessibility." The session was focused on the importance of integrating accessibility components into computer science education. The talk emphasized that doing this not only enhances overall skills and knowledge of creating usable products, but it is also becoming essential to joining the workforce. Major companies including Microsoft, Google, Facebook, Adobe, and Yahoo! are committed to making their products accessible. Many of their job descriptions are beginning to include requirements that the applicant be familiar with accessibility best practices.
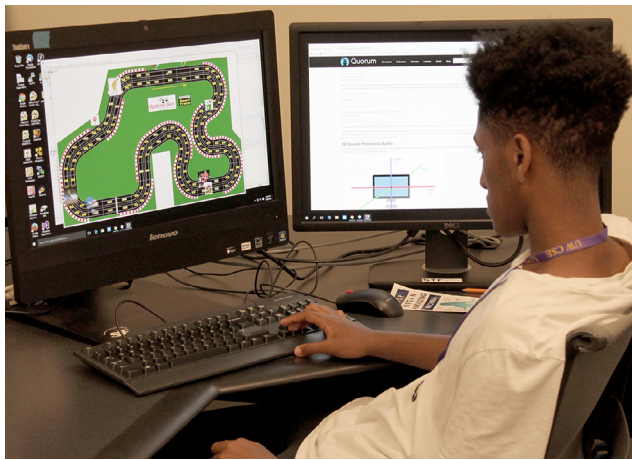
A student learns to use Quorum at a workshop taught by Richard Ladner and Andreas Stefik.

Lastly, Andreas Stefik (University of Nevada, Las Vegas) gave a demo of the Quorum Programming Language. Quorum is a relatively new programming language that was originally designed for blind and visually impaired students, but has since become a way to introduce programming to all young people. To over fifteen attendees, Andreas demonstrated Quorum features and answered questions from the audience.

Jacob Wobbrock honored with SIGCHI Social Impact Award

Jacob Wobbrock, an associate professor at the Information School at the University of Washington and *AccessComputing* co-PI, was awarded the 2017 SIGCHI Social Impact Award for his work in creating and studying technologies for people with disabilities. SIGCHI is the Special Interest Group on Computer-Human Interaction, and they give this award annually to individuals who promote the application of human-computer interaction research to pressing social needs.

Wobbrock was recognized for many research accomplishments, including his work with technologies for people with disabilities. He is also well known for his advocacy of "Ability-Based Design," for computer systems whereby the system adapts to the user's abilities, either automatically or by user-selected options, to make the system accessible and usable. Wobbrock continues to work on making computing more accessible and usable for people with disabilities.

Making the Field of Computing More Inclusive
By Jonathan Lazar, *AccessComputing* Partner

The March 2017 issue of Communications of the ACM features an article (*cacm.acm.org/magazines/2017/3/213827-making-the-field-of-computing-more-inclusive/fulltext*) documenting how ACM SIGCHI, over the past six years, has become more inclusive for teachers, researchers, practitioners, and students with disabilities. The SIGCHI organization has focused on making conferences digital resources more accessible. Improvements include

on the interaction between humans and computers,
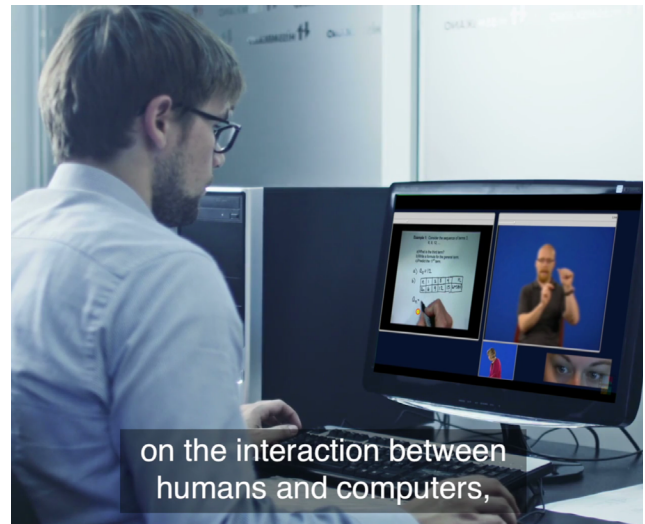
Video capture from SIGCHI's video about their conference's new accessibility features.

1. captioning of organizational videos,

2. improved information flows about accessibility in both conference registration forms and post-conference surveys,

3. use of an accessibility checklist when selecting conference facilities,

4. pilot testing of different approaches for improving research paper accessibility,

5. improvements in website accessibility, and

6. the development of a community of people with disabilities to directly provide feedback to the executive committee of SIGCHI.

I, the lead author on the featured article, as well as my co-authors, have served on the executive committee of SIGCHI, chaired CHI (Computer-Human Interaction) conferences, and/or currently lead the SIGCHI accessibility community. The Communications of the ACM editors also created a five minute video (*vimeo.com/201904338*) about the steps taken by SIGCHI, which features *AccessComputing* PI Richard Ladner and Co-PI Sheryl Burgstahler.

It's important to get feedback from people with disabilities to create products that are as accessible as possible.

About *AccessComputing*

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