

CATSS Newsletter - Center for Applied and Translational Sensory Science
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University of Minnesota: Driven to Discover

CATSS: Center for Applied and Translational Sensory Science

CATSS Newsletter
December, 2018

FROM THE DIRECTOR

Peggy Nelson, PhD, CCC-A, CATSS Director

Best wishes from CATSS for a wonderful new year. 2019 is especially promising for the exciting work happening in the labs here. We are looking forward to opening our new sound booth, bringing us even greater potential for understanding sensory loss and developing new sensory aids. Please join us for our CATSS Winter Symposium Friday Feb. 1, where our keynote speaker, Dr. Jessy Dorn, will bring us a glimpse of the future of implants for vision loss.

Sign up to participate in projects, or just come visit us to see what's happening.

All the best,
Peggy Nelson

CATSS ADDS NEW SOUND BOOTH

A new sound-attenuated booth has been installed, and work is underway to equip the newly renovated Elliott Hall S41 (next door to CATSS).

CATSS was awarded a \$100,000 infrastructure grant from OVPR that was matched by donations from CEHD, CLA, AHC, CSE, and Psychology, providing \$200,000 for the renovation. In addition to the sound booth, an eye-tracking system and EEG system will be installed for use in the new space. It should be ready for use by the start of Spring semester.

FALL CATSS HIGHLIGHTS

Art and Sensory Science Symposium. On Sept. 13, 2018, Liza Sylvestre, an artist with Weisman Art Museum hearing loss, created and orchestrated an immersive art/science event that examined the experience of art by those with sensory loss. The event began with an hour-long art tour of the Weisman Art Museum. Small groups examined selected artworks together and discussed how the diversity of sensory abilities within each group affected the interpretation of the work. The aim was to foster conversations that put a spotlight on how diverse participants' experiences were, depending on the accessibility of sensory information.

The second part of the event featured an "accessibility conversation," which took place in a large, resonant room full of props and different accessibility technology. It was the task of the group, numbering about 50 people altogether, to make the space accessible and accommodating for everyone present. Within the group, there were approximately 15 people present with various types of sensory loss. ASL interpreters, C-print typists, and audio describers were present, as well as individual amplifiers. The group had full control over the lights in the room. After accommodations were in place, enabling most everyone to understand the conversation, a round table discussion about sensory accessibility was held.

Mind the Gap: Becoming Better Science Communicators -- Science Communication workshop and public talk by Madeline Sofia, NPR science writer. Presented by the Center for Cognitive Sciences and CATSS on Sept. 13, Maddie conducted a workshop for the NRT cohort, incorporating elements of improvisation, role-playing, story-

telling, and more. Afterwards, a public talk in which she discussed her own path to Sci Comm, as well as tips for better communication of science to lay audiences, was held in Walter Library.

NSF RESEARCH TRAINEESHIP (NRT) UPDATES

Podcast Development. Coral Dirks, PhD student in SLHS, worked with Five Watt Coffee Shop NRT Podcasts (home of Radio Five Watt) in north Minneapolis to set up an afternoon recording session on site, in which Adam Svec, PhD (ReSound, Inc.) interviewed several NRT trainees on their research and the NRT program. Watch for the finished podcasts on the CATSS web site in the coming weeks!

Abiitan Outreach Activities. Our NRT students have partnered with Abiitan Mill City, a retirement community in the heart of downtown Minneapolis, to develop an outreach venue for our students, where they can get opportunities to talk about their research to a lay audience, as well as engage residents in discussions on current, relevant news stories from the popular press in a "journal club" type format.

Abiitan Outreach

Abiitan Outreach

Upcoming NRT Winter Workshop: January 25, 2019. Open to all PhD students interested in the NRT graduate training program. For more information on the workshop and on the program, see catss.umn.edu/NRT

CATSS MEMBER PROFILE: Matthew Winn, PhD, SLHS

Q. Tell us a little about yourself.

MattWinn

A. I got my training in clinical audiology and also got my PhD at the University of Maryland. But my path really began in college (U of Delaware), where I was a serious guitarist and became obsessed with understanding sound waveforms as I digitally edited music. The tiniest little change or miniscule bump in the soundwave resulted in an impactful change in my perception. How did that happen? At the same time, I took a class that taught me about speech acoustics, where the same observation happened. My entire understanding of speech hinges on noticing those tiny sound differences of 30 milliseconds? That captivated me, and continues to captivate me to this day. I received a lot of help from great mentors who steered me toward channeling this enthusiasm toward something meaningful. I saw hundreds of patients who need help with their hearing, and decided that the best way to use my creativity and drive was to explore ways to better understand language by understanding hearing, and vice-versa. An important part of this journey was my postdoctoral work at the University of Wisconsin-Madison, where I grew to love Midwest culture.

Q. When did you join UMN? What courses are you teaching?

A. I joined the U only four months ago, so things are still building up. I teach courses on cochlear implants, hearing science, and the physics and biology of speech. With graduate students I also find myself teaching about science communication and data visualization.

Q. Tell a little about the research you have been engaged in over the past few years.

A. My lab tries to understand the factors that make speech communication difficult, but which are usually overlooked or underappreciated in clinical assessments. This is because patients often can perform well in their yearly checkups, but still experience difficulty in the real world. So we want to design tests that address their needs and challenges. The main focus recently has been on listening effort exerted by people who have hearing loss when trying to converse. Effort leads to frustration, social withdrawal, exhaustion, and occupational difficulties. In the lab, we measure effort involved in understanding sentences, and whether they can grasp the meaning quickly enough to understand the next sentence being spoken. We do this by measuring speech recognition and pupil dilation as people listen to speech - it is a marker of mental exertion that is non-invasive and quick enough to see momentary changes in effort.

Q. What are some research questions -- particularly interdisciplinary ones -- that you'd like to explore in the future?

A. Some of the most meaningful projects have begun as conversations with patients who come into the lab. I'd like to understand the psychology of how a person decides to either engage in conversation or withdraw because it's too

difficult. It's a tough thing to measure scientifically, but there's good reason to think that it's an important issue. I also want to figure out how people can speak in a way that makes it easier for someone who has hearing loss. That might be a combination of slowed speaking rate, introduction of topic before the conversation begins, or some other factors. I also have interest in testing speech recognition in a way that's more conversation rather than verbatim repetition of words, as we normally test in the clinic and in the lab. At CATSS, there is the right mix of people with expertise in clinical audiology, psychology, brain imaging and sensory science to enable these goals.

Q. What's something people might not know about you?

A. I'm an avid guitarist and you might catch me playing some venues around town!

Come to the Feb. 1st CATSS Symposium to hear more about Dr. Winn's work!

EMAIL: catss@umn.edu
PHONE: 612-624-7846

catss.umn.edu

S39 Elliott Hall
75 East River Parkway
Minneapolis, MN

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