

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

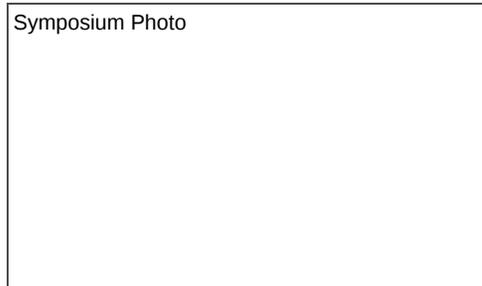
**CATSS Newsletter**  
 March, 2017

### Winter 2017 CATSS Scientific Symposium

Our Winter 2017 CATSS Scientific Symposium was held on February 3 at the McNamara Alumni Center, and was attended by around 75 people.

Presenters included [Dr. Lotfi Merabet, OD, PhD, MPH](#), Director, the Laboratory for Visual Neuroplasticity, Harvard University, who spoke on the topic of brain plasticity in ocular and cerebral causes of visual impairment, and [Andrew Oxenham, PhD](#), Professor and Director of the Auditory Perception and Cognition Lab, Department of Psychology, University of Minnesota, presenting on pitch perception and implications for auditory implants.

Symposium Photo



Symposium Photo

In addition to the scientific talks, 9 posters representing research from Psychology, Speech-Language-Hearing Sciences, Ophthalmology, Biomedical Engineering, Kinesiology departments, as well as Starkey Hearing Technologies were on display.

### FROM THE EXECUTIVE DIRECTOR

2017 has started off well, despite the chilly spring. Science continues to progress, no matter the weather! Dr. Peggy Nelson

A couple of new projects we currently have underway in CATSS include:

- A study of conversational dynamics, funded by Starkey Laboratories (*Dr. Andrew Oxenham*)
- Development of an automated word recognition test (*Dr. Robert Schlauch*)
- A study of auditory streaming of speech in people with hearing loss, funded by Sonova (*Dr. Andrew Oxenham*)

New ones on the horizon include:

- Using EEG and imaging to evaluate the benefit of retinal implants (*Dr. Sandra Montezuma et al.*)
- Using VEMP (vestibular evoked myogenic potentials) to evaluate the effects of infrasound on the human auditory system (*Dr. Meredith Adams and resident Dr. Joel Stanek*)

In addition, we've been assisting with graduate education in audiology. Graduate students from Speech-Language-Hearing Sciences have been coming to CATSS to gain experience in vestibular testing with Prof. Sarah Angerman and the assistance of Dr. Michael Sullivan.

We've been featured in the University of Minnesota Alumni Association's Arizona MinneCollege. Peggy Nelson gave a well-received talk entitled: "Emerging hearing loss solutions: How the newest ideas may change everything."

We hope to coordinate a pool of participants who are interested in being subjects for some of our studies. In the meanwhile, here is an IRB-approved announcement for one project looking for participants, a one-hour study of

human response to very low-frequency sound.

[Read More...](#)

We hear occasionally about industry partners looking for student interns. One is available for summer 2017 from Cochlear Corp. Stay tuned for other internship opportunities that may arise.

[Read More...](#)

Come by for a tour or a visit! We'd love to see you.

- Peggy Nelson

**2017 CATSS SMALL  
GRANT APPLICATION  
DEADLINE:  
April 15, 2017**

CATSS promotes innovative interdisciplinary research in the sensory sciences. The CATSS Small Grant program provides seed money for faculty and students to collect preliminary data on sensory science projects that show promise for future investigations on a broader scale.

CATSS Grants

[Read More...](#)

**CATSS PODCAST #1:  
An Overview**

Ken Mills, a journalist, writer, consultant, and blogger, is currently producing a series of audio podcasts about the mission, goals, current work, staff, and participants in CATSS research projects.

The podcasts, 6-10 minutes in length, will feature thematic presentations designed for educated listeners. They will be adaptable to video and other media.

The first podcast, an overview of CATSS and its purpose, mission, and goals, is now accessible on our web site. A transcript is also available.

[Listen to the podcast..](#)

**CATSS HOPING TO LAUNCH  
SUMMER BROWN BAG  
LUNCH SERIES**

Looking for a way to keep informed on sensory research at U of M this summer? Consider a monthly informal, noon-time gathering where colleagues can share their current research activities and discuss topics of interest to participants.

We are currently assessing interest in this concept. If you would be interested in attending and/or presenting at this summer series (May through August), please email us at [catss@umn.edu](mailto:catss@umn.edu).

Brown Bag

**CATSS Member Profile: Adam Svec, PhD**

Adam Svec

Adam Svec, AuD, PhD, is a research scientist for hearing aid manufacturer GN ReSound. Svec, along with colleague Gene Brandewie, maintains a permanent desk in the CATSS office. This arrangement enables Svec and Brandewie to conduct R&D research for ReSound in CATSS's Multi-Sensory Perception Lab, with its state-of-the-art instrumentation and capabilities.

Svec, a Luther College grad, obtained his AuD (clinical doctorate in audiology) in 2014 and his PhD in Speech-Language-Hearing Sciences in 2015, both from the University of Minnesota. After a stint with Starkey, he joined GN ReSound in 2016.

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

A. As a student, I was fortunate enough to have landed brief research rotations with Dr. Walt Jesteadt at Boys Town National Research Hospital (Omaha, NE) and Dr. Judy Dubno at Medical University of South Carolina (Charleston, SC), completing both basic research and clinically-motivated research. Under the guidance of Dr. Peggy Nelson (current director of CATSS), I studied the effects of hearing loss on speech recognition and related

psychoacoustic measures. I had the opportunity to work with Dr. Magdalena Wojtczak on the final experiment for my dissertation, and we are currently finishing up the associated paper. I was also involved in collaborative work with EarMachine, a smartphone application built to allow for self-adjustment of hearing aid parameters.

For my dissertation work, I was mostly examining ways in which random fluctuations of background noise disrupt listening cues over brief periods of time for individuals with hearing loss. In regions of hearing loss, it seems as though the disruptive effects of noise fluctuations may persist for a greater duration (on the order of milliseconds) than they do in regions of normal hearing.

Recently, some collaborative work with Dr. Peggy Nelson and Dr. Marc Brennan at Boys Town National Research Hospital has suggested that hearing aid compression may generally reduce the effects of these noise fluctuations. Somewhat surprisingly, this effort revealed that these disruptive effects of noise fluctuations are also observed for older listeners without hearing loss, suggesting that age may play a greater role in this phenomenon than previously expected.

**Q. What research questions are you working on now?**

A. Aside from a proprietary research project I'm working on for GN, I'm currently the content editor for GN's research group. GN has independent research labs in Copenhagen (DK), Eindhoven (NL), and Chicago, IL, as well as multiple collaborative sites, such as CATSS at the University of Minnesota. The organization has recently been interested in aligning the tone of their research output across the sites in Europe and the US, so I've taken on the responsibility of trying to do just that. Since I started in September, 2016, the learning curve has necessarily been pretty rapid. The role has required a lot more reading and investigating than actual writing, as is true for most research roles, I suppose.

**Q. How "translational" is your science? Does your work have the potential to directly inform development of product features?**

A. To the second question, I hope so. While not every project I'm currently working on will be able to go directly into product development, I think each project (including the collaborative work with investigators at Boys Town National Research Hospital) may eventually lead to improvements in hearing aid design. However, I'm also interested in improving our tools for categorizing patients with hearing loss. That particular effort is more focused on re-defining the "patient space", as opposed to working on technological advancements for amplification.

**Q. How does the scientific environment within CATSS and UMN affect your work? Collaborative or competitive?**

A. I love the environment of CATSS. Getting to attend journal seminar, academic talks, and conferences with some of the top hearing scientists in the field is an incredible luxury. It keeps me sharp, and it sparks ideas and discussions that would never happen in other surroundings (e.g., office park in the suburbs). In addition, the facilities within CATSS, including the multi-sensory perception lab (MSP), allow for perceptual experimental design that is nearly limitless. It's also no secret that I've always enjoyed having the opportunity to work with Dr. Nelson. Within the scientific community, she is somewhat of an anomaly in that she is incredibly un-selfish, kind, generous, and thoughtful.

CATSS is based on a collaborative spirit. Although we may compete for ideas with other institutions, I think we are all working towards improving the experience of individuals with vision and hearing impairments. It's also a joy to show up to work when you get to interact with Liz Anderson, Gene Brandewie, and Andy Byrne most days. Basically, I have no complaints.

**Q. How would you rate the model of CATSS as a resource/collaborative for industry partners?**

A. I'd like to see more industry researchers take advantage of the facilities. If industry partners could coordinate non-disclosure agreements among investigators sharing the space, I think this would increase the benefit to everyone involved. Especially during times when federal funding for research is not particularly plentiful, industry organizations with funding for research and development should build alliances with experts at academic institutions for the proliferation of applicable work that might not otherwise be undertaken. In a perfect world, CATSS would gain international notoriety for both its academic and industry collaborations.

**Q. You are a musician, too, a singer/songwriter. Does your scientific work inform your songwriting? Does your music inform your research?**

A. Early in my career as a graduate student, I would have answered "yes" to both questions. However, as time goes on, music is my escape. I try to keep my work and music a bit more separate than I originally anticipated. With that said, I do think about the dangers of noise exposure more than I did prior to studying hearing science. I use hearing protection pretty regularly, and I try to encourage my fellow musicians to do the same.

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