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Spring 2008

Communication Sciences and Disorders

College of Liberal Arts & Sciences

The University of Iowa

A message from the chair

As you probably noticed on the banner of the newsletter, the name of our department has changed from Speech Pathology and Audiology to Communication Sciences and Disorders. The building name and designations on the degrees will remain the same, only the department name will change. The decision to change the name was made by the faculty about a year ago. The primary reason for the change was that we believe that the new name more appropriately describes the range of research, teaching activity and clinical practice that is the core of the Department's programs. Topics such as normal language development and language disorders – which are a major part of training, research and clinical practice – fit better under the new name. The name change was officially approved by the Board of Regents in their most recent meeting. We are all trying to remember to use the new name, but it will be a learning process.

More important to the future of the Department is the recruitment of new faculty and students. We were fortunate to hire Melissa Duff as a new assistant professor. She completed her PhD in 2005 at the University of Illinois at Champaign-Urbana. Since that time she has been a postdoctoral research fellow in the Department of Neurology here at Iowa. She will be completing her postdoctoral work in the coming year and start her appointment in August 2009. We welcome her and look forward to a long and productive relationship.

We have completed a new season of student recruitment, with a full slate of 20 MA SLP and 8 AuD students committed to the class entering in the fall. The visit days have proven to be very successful in allowing prospective students to meet with faculty and learn more about the program. In the long run, students are able to make a more informed decision and hopefully will be more successful in their work here.

Finally, we've begun a new training grant for doctoral students designed to expand the range of interests in our students. Read more about it on page 5 of this newsletter.

- Paul Abbas

In this issue

The newsletter is published twice each year for alumni, former faculty and friends.

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listen and speak up!

As shown in a photo from the 2007 program, the Listen and Speak Up! summer preschool program unites SLP and Audiology students with children who have hearing impairments. The overarching goal of the program is to promote spoken language skills in these children. Listen and Speak Up! is held in the Wendell Johnson Speech and Hearing Center and meets two mornings a week for six weeks during the summer.

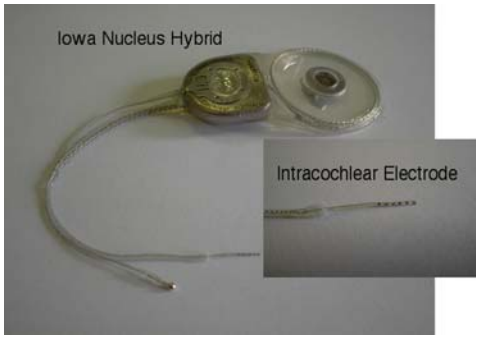
The program was created to fulfill two purposes: to meet the service needs of children with hearing impairments in Iowa, and to provide training for professionals who work with this population.

The service mission exists to promote skills necessary for spoken communication and to provide an option for services during the summer.

Therapy techniques used in the program promote skills necessary for developing spoken language emphasizing auditory skill development in children participating in the program. Music therapy – conducted in collaboration with Dr. Kate Gfeller and the UIHC Cochlear Implant Music Therapy team – provides a unique opportunity to focus on listening / music while reinforcing the child's auditory to speech production and language goals. Weekly parent conferences reinforce goals for each child, promote home strategies for continued progress, and provide an information source for questions parents may have.

Danielle Kelsay and Anne Wallace coordinate the Listen and Speak Up! program.

'Hybrid' device broadens population assisted by cochlear implants



Chris Turner and his lab team have been working in conjunction with the Department of Otolaryngology on the development of a "hybrid" cochlear implant scheme that has changed the candidacy criteria to include adults with nearly normal low-frequency hearing.

To date, approximately 60,000 individuals worldwide have received cochlear implants. The implant bypasses damaged or missing hair cells to send electrical signals through an array of electrodes within the cochlea (inner ear). Current cochlear implants send sound information that covers the entire frequency range. In order to send both high and low frequency information, the electrodes of the cochlear implant are inserted as far into the cochlea as possible. Unfortunately, this compromises any residual hearing the individual may have had prior to implantation.

Consequently, a new shorter electrode has been designed and evaluated at Iowa to help an additional population with hearing loss. These individuals have a considerable amount of residual hearing and their primary hearing loss is in sounds in the high frequency range. They are also experienced, yet unsuccessful, adult hearing aid users with severe-to-profound hearing impairment who would not have been conventional cochlear implant candidates. The short electrode is inserted into the base of the cochlea to restore hearing at high frequencies, while preserving low frequency hearing, or residual hearing, in the apex.

To date, this research has demonstrated that residual hearing can be preserved with this short electrode. Furthermore, the innovative short electrode may be an ideal treatment for those with presbycusis, loss of hearing that gradually occurs in many individuals with age. Therefore, this new electrode design allows many more people with some degree of hearing loss to benefit from cochlear implant technology.

Current / future projects include investigating how two ears of these patients – one with a short electrode, the other with only acoustic hearing – can adapt to different sensations of pitch between the two ears. Also, a new design of the short electrode is currently being implanted; this design has more electrodes, with the hope that patients with this device might do even better.

personnel

Faculty
Abbas, Paul, *Chair*
Akeson, Marcia
Alipour, Fariborz
Bass-Ringdahl Sandie
Bentler, Ruth
Brown, Carolyn J.
Bryant, Karen
Cilek, Toni
Fennell, Ann
Finnegan, Eileen
Fleckenstein, Stephanie
Gfeller, Kate
Goodman, Shawn
Gordon, Jean K.
Holte, Lenore
Hurtig, Richard
Junkins, Sally
Karnell, Michael
Kelsay, Danielle
Klemuk, Sarah
Louko, Linda
McGregor, Karla
Miller, Charles
Moon, Jerald
Niebuhr, Diane
Owen, Amanda
Reiss, Lina
Smith, Alice
Titze, Ingo
Tomblin, J. Bruce
Turner, Christopher
Tyler, Richard
Wallace, Anne
Wu, Yu-Hsiang
Zebrowski, Patricia

Professional / Scientific Staff
Eden, Nichole
Fick, Wendy
Lehrman, Kelvin
Lu, Xiaoying
Murphy, Amanda
O'Brien, Marlea
Ostrem, Julie
Rebal, Kathy
Wald, Arik
Wood, David

Secretarial Staff
Albright, Dorothy
Miller, Kathy
O'Keefe, Joanne
Thomason, Sharon
Yotty, Mary Jo

New doctoral training program underway

The need for new PhD trained individuals – coupled with technologic advancements in research – encouraged Department faculty to develop an enhanced training program for doctoral students in two specific areas. The National Institutes of Health provides funding for traineeships in two areas identified as particular needs in speech and hearing: molecular biology and genetics of speech and hearing, and evaluation of cochlear implants and other auditory prostheses.

Students are accepted into these programs as part of the normal application procedure for Iowa's PhD program. Tuition waivers and stipend support are awarded to PhD students for a period of two years in their programs of study. Generally, this funding supports the first two years of the individual's doctoral program to allow students to take appropriate coursework, participate in research rotations in different labs, and to use those experiences to develop more concrete plans for dissertation research. Funding for subsequent years of study will be provided through the Department or through the mentor's research grant.

Doctoral students supported by this program receive both academic training and laboratory experience equipping them to address research questions from a broad perspective. The two primary foci of training include:

Molecular biology and genetics of speech and hearing: Advances in molecular biology and genetics now provide tools that allow researchers to investigate mechanisms underlying behavior in both normal and impaired systems. Currently, Ingo Titze's research team is studying the micromechanics of vocal tissues. In Bruce Tomblin's lab, researchers are investigating genetic aspects of childhood language disorders. Other laboratories in Departments of Otolaryngology and Biology are collaborating with individuals relative to projects about hearing impairment and possible treatments. Ideally, by the end of their doctoral programs, trainees in this program will have not only expertise in speech and hearing, but also will be conversant with issues of molecular biology, genetics and projects in hearing impairment. This will prepare them for career-long collaborations with other scientists in the fields of molecular biology, genetics and neuroscience.

Evaluation of auditory prostheses: This initiative provides a multidisciplinary approach to the area of auditory prostheses research. Doctoral students in this area receive a broad perspective that includes study of auditory physiology, engineering principles, speech and music perception as well as language development. These experiences provide students with the background needed to both develop new ideas and applications for auditory prostheses as well as to assess their utility. Examples of this approach which have already been successful at Iowa include the development of physiological evalua-

tions of cochlear implants and the short-electrode (hybrid) implant. You may wish to read the article about Chris Turner's research with the hybrid implant on page 3 of this newsletter.

Participating faculty from the Department of Communication Sciences and Disorders include: Paul Abbas, PhD; Sandie Bass-Ringdahl, PhD; Ruth Bentler, PhD; Carolyn Brown, PhD; Richard Hurtig, PhD; Karla McGregor, PhD; Ingo Titze, PhD; J. Bruce Tomblin, PhD; Chris Turner, PhD; and Rich Tyler, PhD. Other participating preceptors are: Bruce Gantz, MD; Kate Gfeller, PhD; Steven Green, PhD; Marlan Hansen, MD; Charles Miller, PhD; Jeffrey Murray, MD; and Richard JH Smith, MD.

Potential candidates are encouraged to contact Paul Abbas for additional information and application materials.

postdoctoral scholar profile

Yu-Hsiang Wu is a postdoctoral scholar in the Hearing Aid Lab for Basic and Applied Research, under Ruth Bentler's mentorship. He moved from Taiwan to Iowa with his family almost five years ago to pursue a PhD in Audiology. In Taiwan he was a medical doctor with a focus in otology. His decision to leave the medical field (at least temporarily) was based on his desire to learn more about hearing loss and hearing aids to better serve his patients. His current series of projects relate to establishing valid laboratory/clinical test environments and protocols for the evaluation of directional microphone hearing aids (DMHA).

In the lab, the DMHA is an effective instrument to help hearing-impaired people improve speech intelligibility in noise. However, the benefits of the DMHA in the real world are rarely observed. This laboratory-field discrepancy suggests that laboratory testing for the DMHA might not be valid. To solve this discrepancy, two major themes are being evaluated by Dr. Wu.

Theme 1: Modern digital DMHAs can change the status of the directivity pattern automatically/adaptively based on acoustic characteristics of the environment. This feature makes it difficult to know the exact directivity status of a DMHA. Without knowing this, researchers cannot ensure the validity of their experiments. Since traditional directivity-assessing methods fail to assess automatic/adaptive DMHAs, a new method needs to be developed. Dr. Wu has worked in this area for the past two years, and recently published a new method in which a novel signal-cancellation scheme is applied. Currently he is working on an improved technique for obtaining the measures.

Theme 2: One explanation of the laboratory-field discrepancy of the DMHA is that laboratory testing fails to capture important characteristics in the real world. In his dissertation, he investigated the effect of visual cues, which has been overlooked in previous DMHA research, on the benefits provided by DMHAs. This project was funded by a Student Research Grant in Audiology from the ASHFoundation.

In his spare time (albeit limited), Dr. Wu enjoys fishing with his son, Michael, and traveling with his family to other parts of the United States. While his long-term plans are still unclear, he hopes to forge further research and teaching connections between Taiwan and the U.S.

awards, awards, awards

Shuman He, Ph.D student, gave a presentation at the 10th International Conference on Cochlear Implants and Other Implantable Auditory Technologies. Travel funds were awarded by the Department, Department of Otolaryngology, the Dr. Eunice Schuytema Beam Travel Grant Program of the UI Women in Science and Engineering (WISE) Program, and the Graduate Student Senate (GSS) Travel Funds Award. Her advisor is Carolyn Brown.

Richard Hurtig was named a Starch Faculty Fellow, carrying an annual recurring research fund to enhance scholarly work and professional travel. Hurtig also received an "Honors of the Council" award at the April meeting of the Council of Academic Programs in Communication Sciences and Disorders (CAPCSD). In addition to past efforts, Hurtig currently chairs the CAPCSD advisory committee working on a centralized application service for speech-language pathology and audiology clinical programs.

Erin King, MA Candidate, was awarded a 2007 $4,000 graduate student scholarship from the American Speech-Language-Hearing Association.

James Lewis, AuD student, received several honors for his work developing a new measure of the internal noise of hearing aids. At the annual meeting of the American Auditory Society in March, his poster was awarded an NIH-AAS mentored doctoral student research grant resulting in an invitation to present the work at an S3.22 ANSI working group meeting. A poster describing this research was also presented at The University of Iowa's 10th annual Jakobsen Graduate Conference, where it was awarded 2nd place in the Biological and Health Sciences Division. James will spend this summer at Boys Town National Research Hospital as part of an NIH-funded research externship (T-35) for AuD students. His mentors are Shawn Goodman and Ruth Bentler.

Hua Ou received the 2007 Minority Student Leadership Program Award of American Speech and Hearing Association (ASHA).

Laura Romey, a first-year MA student in SLP, was awarded the Elizabeth Riedmann Healthcare Scholarship. The award is given through the St. Anthony Foundation at St. Anthony Regional Hospital in Carroll, Iowa.

Gwyneth Rost, PhD candidate, was first author on the conference presentation “Phonetic variability and word learning” in *The emergence of phonological contrast from lexical and perceptual processes* symposium at the 16th International Conference on Infant Studies in March. She won a travel award from the International Society on Infant Studies.

Vicki Samelson, PhD Candidate, was awarded a 2007-08 Council on Teaching Outstanding Teaching Assistant Award. This honor is given to teaching assistants who have demonstrated outstanding ability and carries an award of $1,000.

Derek Stiles was awarded an Executive Council of Graduate and Professional Students (ECGPS) Research Grant ($1000) for work on his dissertation, “Memory and word learning of children with hearing loss in quiet and noise.” His mentors are Karla McGregor and Ruth Bentler. He was also awarded third place in The University of Iowa's 10th annual Jakobsen Graduate Conference for a talk in the Social Science & Education Division.

student publications

Bentler, R.A. & **Wu, Y-H**. (2008). Developments in hearing aid technology and verification techniques. In Advanced Practice in Adult Audiologic Rehabilitation: International Perspectives. San Diego: Plural Press.

Mueller, H.G., Bentler, R.A., & **Wu, Y-H.** (2008). Maximum output in hearing aids. Hearing Journal, 61(2), 40-47.

Ou, H., Dunn, C.C., Bentler, R.A., & Zhang, X. (2008). Measuring Cochlear Implant Satisfaction in Postlingually Deafened Adults with the SADL inventoryHollowness perception with noise-reduction hearing aids. J Am Acad Audiol, in press.

Ou, H., Dunn, C.C., & Tyler, R.S. (2008). Comparisons of Speech Perception and Localization Performance on Matched CICI and CIHA Listeners. Poster at the 10th International Conference on Cochlear Implants and Other Implantable Auditory Technologies, San Diego.

Peng, S. P., Tomblin, B., Turner, C.W. (2007). “Production and Perception of Speech Intonation in Pediatric Cochlear Implant Recipients and Individuals with Normal Hearing”,” Ear and Hearing (in press).

Reiss, L.A.J., Gantz, B.J. and Turner, C.W. (2008). “Cochlear Implant Speech Processor Frequency Allocations May Influence Pitch Perception, Otology and Neurology, 29:160-167.

Reiss, L.A.J., Turner, C.W., Erenberg, S. R., and Gantz, B. (2007). “Changes in pitch with a cochlear implant over time,” J. Assoc. Res. Otol. Jun;8(2):241-57.

Rost, G.C. and McMurray, B. (in press). Speaker variability augments phonological processing in early word learning. Developmental Science.

Wu, Y-H., Bentler, R.A. (2007). Using a signal cancellation technique to assess adaptive directivity of hearing aids. Journal of the Acoustical Society of America 122: 496-511.

Alumni Updates

From the 1960's

Shirley Salmon (MA 1962; PhD 1965). Current job: Retired. "Still work with laryngectomees and the Kansas City Nu-Voice Club monthly meetings. Also I volunteer for K.C. Hospice and Palliative Care."

Ted Glattke (PhD 1968). "I retired from academia December 31, 2007, after 32+ years at the University of Arizona. I was inspired by Hugh Morris' recent comments in the Department Newsletter to send you an update. I am amazed that I can say I've known him for 45 years! He was at the first orientation meeting (party) I attended in Iowa City, and he attended my retirement party in December, 2007! Most importantly, he insisted that I rotate through the Iowa Cleft Palate Program during my Ph.D. studies with Arnold Small in hearing and, in doing so, he granted me the opportunity to develop insights that have served me well. I will be working in Mexico to create an NGO devoted to producing low cost hearing aids for distribution in Latin America. If any reader is in Alamos, Sonora, give us a call, and we will be delighted to show you the sights of this beautiful colonial city."

From the 1970's

Kathleen Williams Presgrove (MA 1972). "I retired in 2003 after 30 years in the Speech and Hearing Clinic of Atlanta Speech School, Inc., as an SLP. I received honors of the GA Speech-Language-Hearing Association in March 2006. I'm enjoying traveling during my retirement. My husband and I are cruising to Antarctica in 2008."

From the 1980's

Ted Madison (BS 1982; MA Audiology, 1984). Current job: Technical service specialist, 3M Occupational Health and Safety. "(I was) appointed to the Council for Accreditation in Occupational Hearing Conservation (CAOHC). Elected to ASHA Special Interest Division 8 Steering Committee, Hearing Conservation and Occupational Audiology."

Lori (Potter) Nagel (BS, Iowa, 1989; MS, Speech Pathology, U of Arizona, 1991). Current job: My son, Braden. News: " My husband, son, and I recently relocated back to the Des Moines area after living in the Southwest for 18 years, most of that time within Southern California. I am taking some time away from my career to raise my son but want to stay connected to the University of Iowa and the SHC department."

From the 1990's

Ningji He (PhD 1990). Current job: ENT research, Medical University of South Carolina.

Brenda (Bergman) Hoover (BS 1988, MA Audiology 1990). "I've been in Omaha at Boys Town National Research Hospital since 1991. I'm currently working as a Research Audiologist in the laboratory of Dr. Pat Stelmachowicz. I am married and have 6 children (Jack, Mary, Grace, Kate, Peter, and Annie)."

From 2000's

Rebecca Garms Cummings (MA, 2002), Clinical Speech-language pathologist for Iowa Health in Des Moines, working as a resource person, covering all areas (acute, inpatient rehab, pediatrics, outpatient).

Lindsay B. Overton (BA, Speech- Language Pathology and Audiology, 2005). Graduate school in Washington, DC at Gallaudet University (with plans to graduate May 2007). "I'm on a Pediatric Aural Rehabilitation Emphasis grant which is federally funded to produce more professionals in the field to work with the Deaf and Hard of Hearing population. President of the NSSLHA chapter here also."

2008 SENA

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THE UNIVERSITY OF IOWA
Department of Communication Sciences and Disorders
Wendell Johnson Speech and Hearing Center
Iowa City IA 52242

connections

We're committed to keeping the communication channel open between alumni, friends and former faculty of the Department to our current students, faculty and staff. We hope you will read, enjoy and respond to this newsletter. We also encourage you to visit the department website www.uiowa.edu/~comsci to keep up to date with your former colleagues and current Departmental news. If you have not already done so, consider returning the completed form below to us via mail or FAX 319.335-8851. You may also Email speech-path-aud@uiowa.edu, using "my news" as a subject line. We'd enjoy hearing from you, and if you agree, we will publish your news in the Alumni Updates section (see page 7).

keep in touch

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Degree / year earned _____

Current job _____

Your news _____

_____

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