

Obituary

Sigfrid D. Soli, 1946–2022



Sigfrid D. (Sig) Soli, an internationally respected scientist in speech perception, cochlear implant research, and hearing aid research, passed away on April 11, 2022, after a short illness. He was 75 years old.

Born in Granite Falls, Minnesota, in 1946, Sig graduated from St. Olaf College (Northfield, Minnesota) in 1968, followed by service in the US Air Force. He obtained his PhD in experimental psychology from the University of Minnesota (Minneapolis) in 1979, followed by a faculty position in psychology at the University of Maryland, College Park (College Park).

In 1984, Sig took a position on a team at the 3M Corporation (Maplewood, Minnesota) to develop a new implantable hearing device, the cochlear implant. He and colleagues published a notable paper (Van Tasell et al., 1987) in which they showed that listeners could recognize 40% of consonants correctly, even when all spectral information was removed. This finding was highly surprising and helped explain the good outcomes of early patients with single-channel cochlear implants.

In 1989, Sig joined the House Ear Institute (Los Angeles, California) to continue his work on cochlear implants and hearing aids. Sig and his team produced the Hearing in Noise Test (HINT) (Nilsson et al., 1990) to evaluate the effects of interfering noise on speech recognition before and after clinical interventions. The HINT is now the international standard for quantifying the effects of noise on speech recognition and has been translated and validated in more than 20 languages.

Sig and his colleagues developed a series of tests to evaluate functional directional hearing (Soli et al., 2018). This test is now used internationally to evaluate localization ability in many professionals (police, fire, and medical) who often must make time-critical decisions based on the direction of sounds indicating, for example, danger or cries for help.

Sig was an advocate for sound-quality standards for classrooms to help children with hearing impairments. He demonstrated that many types of noise present in most classrooms can lead to serious problems in the development of speech and language (Nelson et al., 2002).

Overall, Sig realized the importance of basic science to identify the underlying causes of hearing disorders, working with companies to develop commercial products and with clinicians to apply those products to help patients with hearing disorders: bench to commercialization to patients.

Sig was generous with his time in providing public service to the Acoustical Society of America as a chair of its Speech Communication Technical Committee and was named a Fellow. On a national scale, he served as an advisor to the US National Institute on Deafness and Other Communication Disorders of the National Institutes of Health and to the US National Research Council. He was a voting member of the Ear, Nose, and Throat Device Panel of the US Food and Drug Administration.

In addition to his scientific achievements and public service, Sig was a friendly figure who will be remembered fondly by many colleagues around the world. Sig is survived by his wife Susan and sons Andrew and Daniel.

Selected Publications by Sigfrid D. Soli

Nelson, P., Soli, S., and Seltza, A. (2002). *Acoustical Barriers to Learning: Understanding the Need for a Classroom Acoustics Standards*. Acoustical Society of America, Melville, NY.

Nilsson, M., Soli, S. D., and Sullivan, J. A. (1994). Development of the Hearing in Noise Test for the measurement of speech reception thresholds in quiet and in noise. *The Journal of the Acoustical Society of America* 95, 1085-1099.

Soli, S. D., Giguere, C., Laroche, C., Vaillancourt, V., Dreschler, W. A., Rhebergen, K. S., Harkins, K., Ruckstuhl, M., Ramulu, P., and Meyers, L. S. (2018). Evidence-based occupational hearing screening I: Modeling the effects of real-world noise environments on the likelihood of effective speech communication. *Ear and Hearing* 39, 436-448.

Van Tasell, D. J., Soli, S. D., Kirby, V. M., and Widin, G. P. (1987). Speech waveform envelope cues for consonant recognition. *The Journal of the Acoustical Society of America* 82, 1152-1161.

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