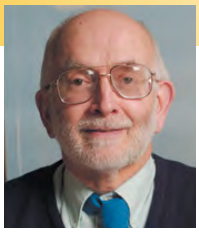
Obituary
Louis D. Braida, 1943–2022



Louis D. (Lou) Braida, a Fellow of the Acoustical Society of America, died on September 2, 2022, at the age of 79. Lou received his BS in electrical engineering (1964) from The Cooper Union, New York, New York, and his MS (1965) and PhD in electrical engineering (1969) from the Massachusetts Institute of Technology (MIT), Cambridge. He remained at MIT for his entire career as a professor of electrical engineering and computer science (EECS) and of health sciences and technology (HST). He was named to the Henry Ellis Warren Chair in EECS. Lou served for 15 years as director of the Speech and Hearing Sciences Training Program, a part of the Harvard-MIT HST Program, and retired as professor emeritus.

Conducting his research within the Research Laboratory of Electronics at MIT, Lou was internationally known for his work in the areas of intensity perception, the characterization of hearing impairments, and aids for the deaf. Using modern communication theory and signal-processing techniques, he worked to develop improved aids for people suffering from sensorineural hearing impairments, addressing many of the field's knottiest problems in the pursuit of improved performance.

Lou's work strongly enhanced the research community's analytical understanding of both the benefits and limitations of compression amplification in hearing aids. He also did rigorous research on approaches to frequency lowering for individuals with restricted useful auditory bandwidths, on characterizing the benefits of "clear speech" together with attempts to re-create the benefits via signal processing, and on applying automatic speech recognition to generate real-time "cued speech" as a speechreading supplement. Additionally, Lou sought to develop tactile aids that would serve as a substitute for hearing in the reception of speech and environmental sounds in people who are profoundly deaf or deaf-blind.

Lou worked for the long term. His work on intensity perception and loudness includes a series of 14 papers in *The Journal of the Acoustical Society of America*. That research exploited a unidimensional model of perception. He then went on to develop a generalized multidimensional framework that could explain several interesting features of multimodal (audio-visual) speech perception.

Beyond his quantitative approach to perceptual research, Lou had a deep fascination with computers and engineering for psychoacoustic research and in the early days could be seen with streams of punched paper tape hanging around his neck. He was a devoted mentor to all his students, promoting a congenial laboratory environment that was truly remarkable. Occasionally, he "over-reached." To ensure that fresh coffee was always available in the laboratory, he once brought back 25 pounds of green (unroasted) beans from Hawai'i (Acoustical Society of America Meeting of 1988) because they don't become stale. However, we learned quickly that roasting them in a hot-air popcorn maker was not a pleasurable olfactory experience.

Lou will be remembered by his many students and colleagues as an intellectual force who had an enormous impact on our personal and professional growth, and he will be greatly missed.

Selected Publications by Louis D. Braida

Braida, L. D. (1991). Crossmodal integration in the identification of consonant segments. *Quarterly Journal of Experimental Psychology* 43A, 647-677.

Braida, L. D., Durlach, N. I., Lippmann, R. P., Hicks, B. L., Rabinowitz, W. M., and Reed, C. M. (1979). Hearing aids — A review of past research on linear amplification, amplitude compression, and frequency lowering. *ASHA Monographs* (19), 1-114.

Durlach, N. I., and Braida, L. D. (l969). Intensity perception. I. Preliminary theory of intensity resolution. *The Journal of the Acoustical Society of America* 46(2), 372-383.

Léger, A. C., Reed, C. M., Desloge, J. G., Swaminathan, J., and Braida, L. D. (2015). Consonant identification in noise using Hilbert-transform temporal fine-structure speech and recovered-envelope speech for listeners with normal and impaired hearing. *The Journal of the Acoustical Society of America* 138(1), 389-403.

Written by

William M. Rabinowitz bill.rabinowitz@alum.mit.edu
Bose Corporation, Retired

Charlotte M. Reed cmreed@mit.edu
Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge