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Dr. Lomber

Acoustic Experience Alters How You “See” the World

Abstract:

Cortical plasticity is the neural mechanism by which the cerebrum adapts itself to its environment, while at the same time making it vulnerable to impoverished sensory or developmental experiences. Like the visual system, auditory development passes through a series of sensitive periods in which circuits and connections are established and then refined by experience. Current research is expanding our understanding of cerebral processing and organization in the deaf. In the congenitally deaf, higher-order areas of “deaf” auditory cortex demonstrate significant crossmodally plasticity with neurons responding to visual and somatosensory stimuli. This crucial cerebral function results in compensatory plasticity. Not only can the remaining inputs reorganize to substitute for those lost, but this additional circuitry also confers enhanced abilities to the remaining systems. In this presentation we will review our present understanding of the structure and function of “deaf” auditory cortex using psychophysical, electrophysiological, and connective anatomy approaches and consider how this knowledge informs our expectations of the capabilities of cochlear implants in the developing brain.



Biography:

Stephen G. Lomber, Ph.D. is a Professor of Psychology and Neuroscience at University of Texas at Arlington where he directs the Cerebral Systems Laboratory. Dr. Lomber received degrees in Neurobiology from the University of Rochester (B.Sc.) and the Boston University School of Medicine (Ph.D.). Dr. Lomber’s lab (www.cerebralsystems.ca) uses an integrated approach of psychophysics, electrophysiological recording, neuroanatomical techniques, and functional imaging to examine processing in the auditory cortex. His lab has pioneered the use of focal cooling to reversibly deactivate regions of the cerebrum. Work in his lab examines cortical plasticity in the presence and absence of acoustic input and following the initiation of auditory processing through the means of cochlear prosthetics. In 2024, Dr. Lomber received the Pioneer Award for Basic Science Research from the Association for Research in Otolaryngology (ARO) and the President’s Award from the Canadian Academy of Audiology.

Date/Time:

Friday, May 9th

@ 12 noon to 1 pm

Location

MS Teams and Room CD A229