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Interfacing between the brain and hearing-aid

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One of the pressing problems in the rehabilitation of hearing impairment relates to hearing aid fitting, which currently requires significant interaction between the user and an audiologist, and is difficult to perform with infants and young children. These difficulties contribute to the fairly high levels of user dissatisfaction with hearing aid performance. The measurement of the speech-evoked auditory brainstem response (sABR) could help in hearing aid fitting since this response reflects internal auditory processing of sounds. Hearing aid settings could therefore be adjusted based on feedback from the electrical responses of the brain as part of a brain-computer interface (BCI).

Traditional BCI is limited in its capacity for information transfer because it usually relies on attentional tasks to actuate the control process. In contrast, the use of sABR as part of a BCI system relies on the detection of lower level auditory processes that respond rapidly. This talk will describe recent developments in the measurement of sABR and the outlook for its application in a BCI for hearing aid fitting.

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admission is free
14:30 – 15:30
Southam Hall
Room 317
Carleton University

Hilmi Dajani (M'07–SM'11) received his BEng degree in electrical engineering from McMaster University, Hamilton, Canada, in 1987, and his MSc and PhD (collaborative program in biomedical engineering) degrees in electrical and computer engineering from the University of Toronto, Canada, in 1991 and 2004. He is currently an Assistant Professor in the School of Electrical Engineering and Computer Science at the University of Ottawa, Canada. His research interests include speech-evoked potentials, auditory-inspired speech processing, the development of instrumentation for the assessment and treatment of speech and hearing impairments, and the development of new methods for the analysis of cardio-respiratory function.

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