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Real-time Interfacing for Fault Detection and Auralization with MED-EL Cochlear Implant Processors

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Abstract

Achieving a correct fitting of cochlear implants is a tedious and difficult work. Most fitting specialists need extensive experience on how changes in fitting parameters are translated into perceived sounds. Also, the processor fault often is overlooked and thus, the degraded hearing quality is attributed to changes in the patient's physiology. In this context, this paper presents the implementation and benefits of a simple solution designed to be connected to a cochlear implant processor in order to register and display the generated pulses on a computer display. Moreover, using the registered pulses, the perceived sound is approximated and replayed using a simple auralization algorithm. Particularly this solution is developed for main MED-EL cochlear implant processors with significant experimental results.

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