

Temporal and place pitch percepts for Cochlear Implant users

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Hearing is a complex process in which acoustic signals are converted to neural responses that can be utilized by the human brain. To do so the ear uses different linear and non-linear mechanisms to analyze and convert incoming sound signals. Cochlear implants (CI) are prostheses for restoring functional hearing in severely hearing-impaired and even profoundly deaf persons. They directly evoke neural responses by electrically stimulating auditory nerve fibers. In order to do so, CI systems mimic - in a highly approximate way - the signal processing in the normal auditory periphery.

In a recent study we have measured the effectiveness of concepts relying on temporal and place information for encoding pitch in CI systems. Our results show that novel signal processing strategies encoding temporal information in the apical region of the cochlea should be beneficial for CI users.