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Novel applications of objective measures in cochlear implants

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Citation

Dong, Y. (2022, February 15). *Novel applications of objective measures in cochlear implants*. Retrieved from <https://hdl.handle.net/1887/3275097>

Version: Publisher's Version

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Stellingen behorende bij het proefschrift getiteld

Novel Applications of Objective Measures in Cochlear Implants

1. A deconvolution model of the eCAP provides the opportunity to extract the temporal properties of auditory nerve fibers underlying eCAPs elicited by a cochlear implant (this thesis).
2. Temporal firing properties can potentially provide clinically valuable information, such as on the survival state and function of auditory nerve fibers, and, ultimately, speech perception (this thesis).
3. The refractory properties of auditory nerve fibers underlying the short-latency and long-latency components of the eCAP can reveal additional clinical implications in terms of the refractory difference between children and adults as well as speech outcomes after implantation (this thesis).
4. Intra-operative EFI recordings can detect translocations of the electrode array and provide surgeons with prompt feedback, which may be beneficial for future cochlear implantations (this thesis).
5. Preserving residual hearing is of importance assuming it can lead to better speech perception with a cochlear implant.
6. Challenges in cochlear implants include, but are not limited to, the individual variability in speech outcomes after implantation, the lack of reliable preimplant predictors of outcomes, and what to do with a cochlear implant recipient who shows a poor outcome.
7. Better interpretations of objective measures can further improve the design and fitting of cochlear implant devices and insertion of the electrode array, which, in turn, can improve speech outcomes.
8. Optical cochlear implants using light as stimulation may be capable of dramatically improving speech perception in the foreseeable future.
9. Hearing loss is not only an issue of the ear but also of the brain.
10. In the future, wearable hearing devices, such as cochlear implants, will be commonly used for hearing loss restoration in underdeveloped countries.
11. PhD study is like riding on a roller coaster full of ups and downs: just keep running.