PUBLICATIONS

Articles


Conference proceedings
M.R. Benard & D. Başkent (2014). Which linguistic skills and components of intelligence are involved in the top-down restoration of interrupted speech? Association for Research in Otolaryngology, 37th MidWinter Meeting, San Diego, USA. Podium presentation.


Publication of this dissertation was supported by

Pento Speech and Hearing Centers
Advanced Bionics
Cochlear
De Nederlandse Vereniging voor Keel-, Neus- & Oorheelkunde en Heelkunde van het Hoofd-Halsgebied
EMID, Electro Medical Instruments BV Doesburg
Oticon Medical
Rijksuniversiteit Groningen (RuG)
School of Behavioural and Cognitive Neuroscience (BCN)
Universitair Medisch Centrum Groningen (UMCG)
MECHANISMS OF TOP-DOWN RESTORATION OF DEGRADED SPEECH

The present book is an investigation of the underlying mechanisms of top-down speech restoration in the presence of sound degradations in cochlear implants. The results show that both top-down and bottom-up processes play an important role in the restoration of interrupted speech. Especially high-level linguistic mechanisms seem to have a large influence on the restoration of interrupted speech. Receptive vocabulary and verbal intelligence are shown to be significant predictors of successful restoration of interrupted sentences without spectral degradations. These top-down restoration mechanisms are shown to be less effective if the bottom-up auditory signal is of insufficient quality (as occurs in cochlear implant speech processing).

IMPLICATIONS FOR COCHLEAR IMPLANT USERS

Our overall results suggest that better perception of interrupted speech can indeed be achieved via training, even with spectrotemporal degradations of cochlear implant speech transmission. Since linguistic skills play an important role in the restoration of spectrally degraded interrupted speech, cochlear implant users can possibly train themselves to improve their linguistic skills by reading books or solving crossword puzzles. Furthermore, providing relatively simple feedback, even the text of the sentence, seems to be an effective feedback to lead to successful learning. Finally, lip-reading, which is often available in daily speech communication, does help in speech perception for cochlear implant users.