Using Neural Networks to Improve Cochlear Implant Speech Perception

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Abstract:

- An increasing number of profoundly deaf patients suffering from sen- sorineural deafness are using cochlear implants as prostheses. Mter the implant, sound can be detected through the electrical stimulation of the remaining peripheral auditory nervous system. Although great progress has been achieved in this area, no useful speech recognition has been attained with either single or multiple channel cochlear implants. Coding evidence suggests that it is necessary for any implant which would effectively couple with the natural speech perception system to simu(cid:173) late the temporal dispersion and other phenomena found in the natural receptors, and currently not implemented in any cochlear implants. To this end, it is presented here a computational model using artificial neural net(cid:173) works cochlear. the natural phenomena