

Bachelor's Thesis:

Music Preference of Bimodal Cochlea Implant Users

Abstract

Objective: A CI (Cochlea Implant) is able to restore speech intelligibility to an impressive extent. Unfortunately, music perception and appreciation are often poor and highly limited. Current research suggests that the reduction of complexity in music and a salient lead vocal can enhance the appreciation for CI users. The current study conducted 2 experiments involving bimodal CI users. **Design:** Experiment 1 is a mixing task in which test subjects were asked to adjust the preferred balance between a vocal mix channel and a background instrumental mix channel. Experiment 2 investigates the preference of specific pre-processed music (higher volume vocals) with respect to the original. Both experiments were performed by 8 bimodal CI users and 15 normal hearing test subjects. The bimodal CI group was tested via free-field loudspeaker or via direct streaming in the CI, respectively. **Results:** In the direct streaming condition of experiment 1, the bimodal CI group adjusted the vocal mix channel significantly higher in volume than the normal hearing control group (up to 2.6 dB). In the free-field condition of experiment 1, the results depended on the presented audio material. Experiment 2 showed a significant difference between the bimodal CI group and the NH control group. However, no significant difference was found with respect to the chance probability in the direct streaming condition. In the free-field condition of experiment 2, the more original version of the presented songs was preferred by the bimodal CI group (up to 77%). The normal hearing control group strongly preferred the more original versions of the presented songs (up to 95% preference of the original song version). **Conclusion:** The findings suggest that music appreciation for bimodal CI users may benefit from a more salient vocal track. An implemented real-time source separation algorithm represents a promising tool for remixing music for bimodal CI users.

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