1109: CCI-MOBILE: INDIVIDUAL CHANNEL BOOSTING OF CONSONANT AND VOWEL SEGMENTS IN N-OF-M STRATEGIES FOR COCHLEAR IMPLANTS

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Continuous Interleaved Strategy (CIS) for electrical stimulation of the acoustic input to the intracochlear electrode exists across the major cochlear implant manufacturer systems today. Trade-offs exist between temporal and envelope cues in individual signal processing of various commercial strategies. "n-of-m" strategies select a subset ("n") of electrodes of the total electrodes ("m") for stimulation within a single stimulation cycle. These strategies place emphasis on envelope cues to aid in speech recognition in daily listening conditions including diverse noisy settings. Prior studies have demonstrated the positive relationship between vowel information and sentence intelligibility in low-level noise conditions (<15 dB SNR), where consonants are generally important for individual word recognition. In this study, individual channel characteristics were used to classify segments of speech as either consonant- or vowel-dominant through multi-class labeling and transcription. The proposed signal processing approach stimulates consonant-dominant channels using a sigmoid compression scheme and vowel-dominant channels using a weighted exponential function. Sentences from the IEEE database were phonetically labeled and transcribed. Two different noisy conditions were developed for IEEE sentences: 10 and 5 dB SPL speech-shaped-noise. Additionally, CNC words and phonemes used to assess consonant and individual word recognition in quiet and equivalent noisy conditions. Sentence/word tokens were processed offline through MATLAB, streamed to CI users through the CCi-MOBILE Research Platform (CRSS-CILab, UT-Dallas) in a direct-connect setup, and scored for intelligibility. Results from 4 CI users will be discussed.