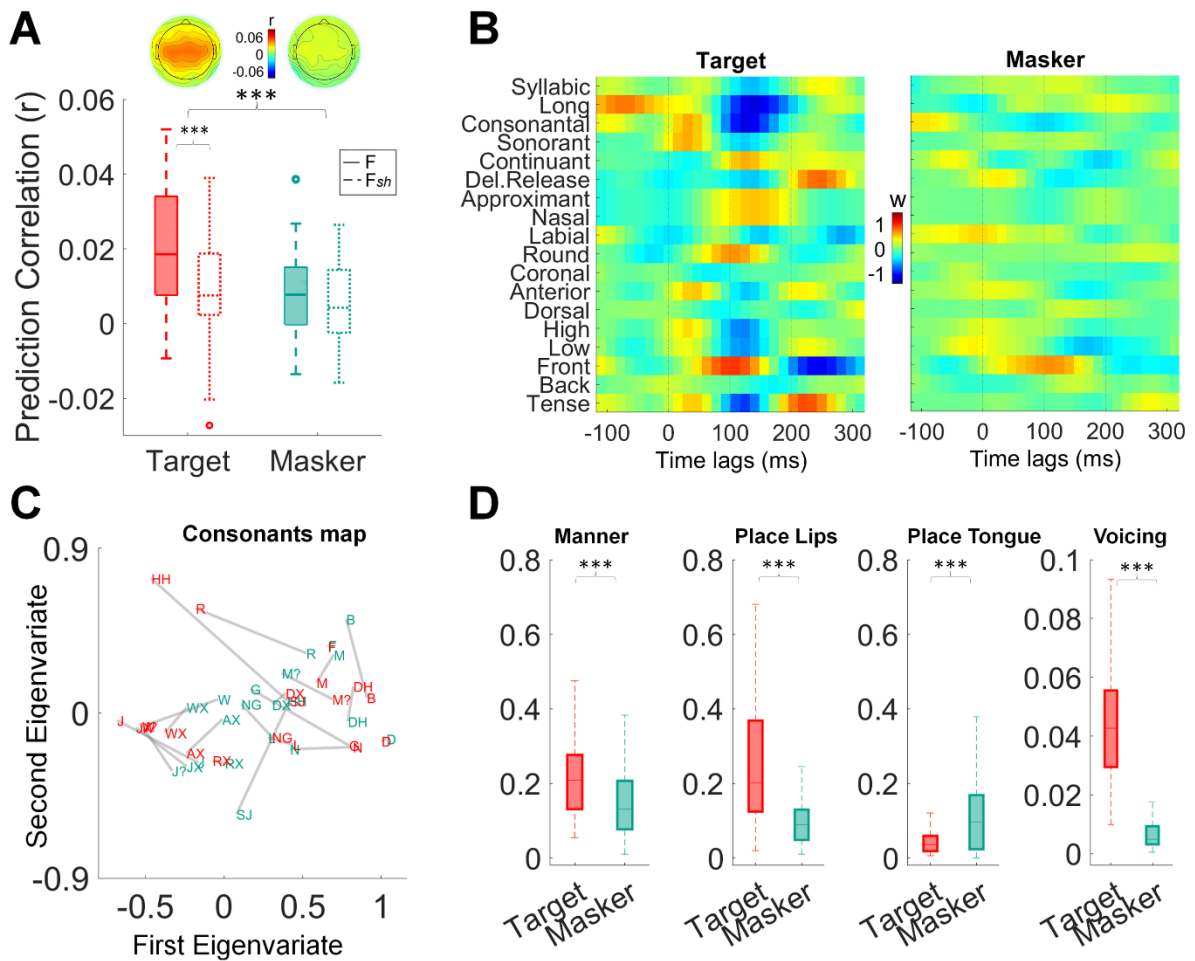


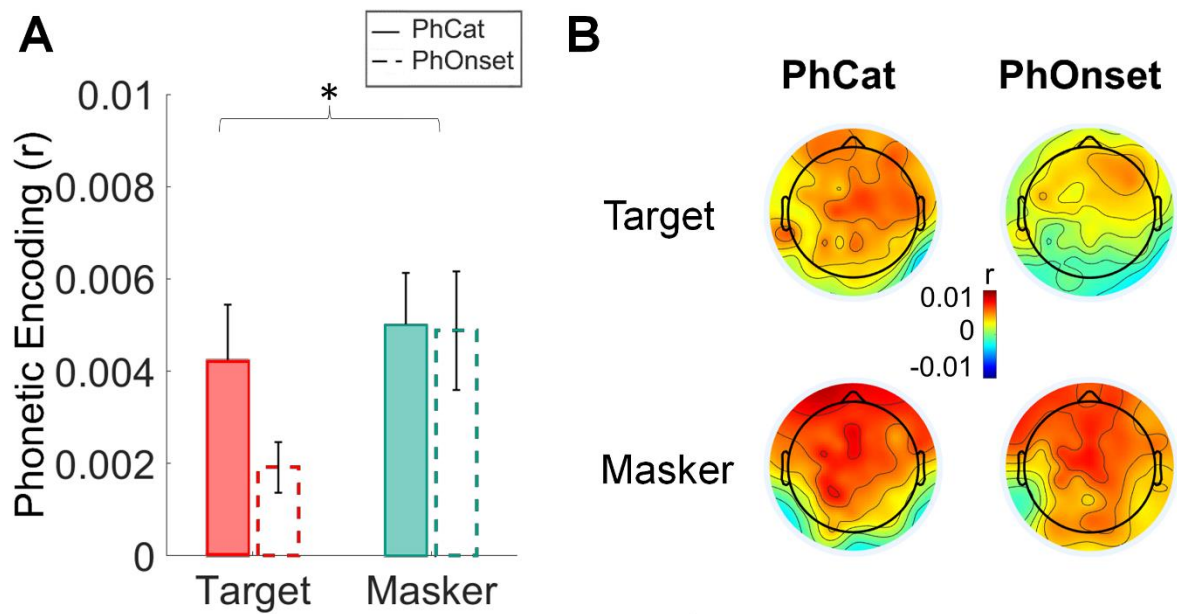
Extended Data

# **Cortical over-representation of phonetic onsets of ignored speech in hearing impaired individuals**

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**Figure 1-2. Target acoustic-phonetic information is more strongly encoded than the masker's information in listeners with hearing impairment when background noise is removed in the NR ON condition. (A) EEG prediction correlations (Pearson's  $r$ ) for phonetic features models  $F$  and shuffled control  $F_{sh}$  of the target and masker speech. Scalp topographies represent the distribution of prediction correlations across all channels (average across participants) for the  $F$  model. Error bars indicate the SEM across participants. (B) TRF weights at channel FCz for the eighteen phonetic features for the  $F$  model. (C) Phoneme distance maps (PDMs) for target (red) and masker (green) speech. (D) EEG sensitivity to groups of phonetic features, i.e., quality of clustering of the EEG responses around relevant phonetic contrasts, for target and masker speech.**



**Figure 3-2. Over-representation of phonemic onsets of the ignored speech sounds in the low-frequency EEG of hearing-impaired participants when background babble noise is suppressed in the NR ON condition. (A)** EEG prediction gains obtained from the PhCat ( $F_{S-S}$ ) and PhOnset ( $F_{sh}S-S$ ) metric, for the target and masker speech. Bars represent the increase in prediction correlations ( $r$ ) averaged across all subjects and electrodes. Error bars represent the SEM across subjects. **(B)** Topographical distribution of the average EEG prediction correlation increases from the baseline model  $S$ , across all electrode locations.