

Speech Perception and Deception Linked to Neural Representations of Prediction Error

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Presentation Abstract Summary Perception depends on combining sensory input with prior knowledge. When sensory signals are degraded, informative priors can improve perception but may also lead to misidentification (deception). Here we contrast two functionally-distinct computational mechanisms by which prior expectations can influence sensory representation of degraded speech. Expected features of the speech input can be enhanced or sharpened (Sharpened Signals), or in Predictive Coding accounts, expected features are suppressed and unexpected signals (Prediction Errors) are represented and processed further. The present work aimed at distinguishing between these two accounts. In two fMRI experiments we explore how prior knowledge (written text) influences perception of degraded speech. By combining behavioural, univariate and multivariate fMRI measures of how prior expectations lead to speech perception or speech deception, we provide evidence uniquely consistent with Prediction Error computations.

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