

How do communicative goals affect continuous speech dynamics?

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In this talk, I will present evidence that speakers' communicative goals form the predictions for what their speech should sound like, and that mismatches in prediction activate a neural circuit that helps to catch and dynamically correct impending speech errors. One set of experiments employs altered auditory feedback to drive this detection-correction circuit with an induced "mismatch." Another line of research examines the dynamics of vowel acoustics in the context of natural production variability to show the constant influence of feedback in everyday speech. Through these studies, I will show that the degree of suppression of auditory cortical activity during speech reflects an error detection-correction process that is present even before a full error is realized, and that is modulated by the context-dependent goals of the speaker. My ongoing work with persons with aphasia explores how feedback correction mechanisms can compensate for impaired feedforward speech production, and how we might leverage feedback-based training to develop technologies for speech learning and rehabilitation.