

# 'Despite the noise, I can see what you mean': audiovisual speech in different noisy situations

Wednesday, September 25, 2024 1:30 PM (20 minutes)

Everyday listening conditions are very often far from the quiet settings provided in the laboratory when studying spoken language processing. Daily communication via speech often happens through noisy channels, e.g., phone call with a bad line or face-to-face in a crowd. In such noisy contexts, mouth movements and face cues facilitate comprehension, likely by exploiting predictive processing as well (Pelle & Sommers, 2015). Interestingly, speech-motor neural substrates seem to be particularly engaged when processing speech in noise (Skipper et al., 2017).

Here we delineate a research project that aims at studying how the brain adapts to different noise sources –e.g., vocoding is not a real life-like noise source, while superimposed multi-talker babble is –and what is the role of audio-visual and audio-motor abilities. While their EEG is recorded, participants will attend to audio-video stimuli of a person uttering sentences, which can be semantically constraining towards a final target word or not. Noise type will be manipulated. To understand prediction and integration processes in familiar and unfamiliar noisy contexts we plan to analyze: 1) oscillatory power in the alpha, beta, and gamma ranges, before and after the target word, 2) connectivity between auditory, motor and visual regions, 3) phase coherence between EEG and audio envelope and mouth movements. We plan to also collect behavioral measures related to individual abilities in lip-reading, audiovisual integration, and audio-motor synchronization.

The research aims at understanding how audio-visual and audio-motor individual abilities contribute to predicting and comprehending speech in familiar and unfamiliar noise.

**If you're submitting a poster, would you be interested in giving a blitz talk?**

No

**If you're submitting a symposium talk, what's the symposium title?**

**If you're submitting a symposium, or a talk that is part of a symposium, is this a junior symposium?**

No

**Primary author:** Dr GASTALDON, Simone (Department of Developmental and Social Psychology, University of Padova)

**Co-authors:** GHELLER, Flavia (Department of Developmental and Social Psychology, University of Padova); PIAZZA, Giorgio (Department of Developmental and Social Psychology, University of Padova); VESPIGNANI, Francesco (Department of Developmental and Social Psychology, University of Padova); PERESSOTTI, Francesca (Department of Developmental and Social Psychology, University of Padova)

**Presenter:** Dr GASTALDON, Simone (Department of Developmental and Social Psychology, University of Padova)

**Session Classification:** Lunch & Poster 3