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Language in the context of digital communication and neurotechnology: Leveraging the auditory oscillatory function to treat speech and language disorders
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The neural computations that make oral communication possible must operate on multiple time scales, both in parallel and recursively. Neuronal oscillations at different scales and their precise coordination are a key instrument of this necessary multiplexing, a phenomenon we are exploring in humans through surface and intracortical EEG. In this lecture, we recall the key computational principles of speech processing and show how we can exploit them to both understand and treat pathologies of speech and language using neurotechnology. This framework allows to propose concrete and science-based treatments for both neurodevelopmental and acquired language disorders such as dyslexia, autism, and speech production disabilities.