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EEG Time-Warping to study non-strictly-periodic EEG signals related to the production of rhythmic movements.

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Highlights

- Natural rhythms, such as music and dance, show fluctuations of their period over time.
- The EEG time-warping procedure make it possible to « concentrate » non-strictly-periodic neural responses in the frequency domain.
- The EEG time-warping procedure extends the use of EEG frequency-tagging to the study of natural rhythms.
- The EEG time-warping procedure offers a way to disentangle concurrent periodic neural
- activities, such as activities recorded in the context of rhythmic sensorimotor synchronization.

Abstract

Background

Many sensorimotor functions are intrinsically rhythmic, and are underlined by neural processes that are functionally distinct from neural responses related to the processing of transient events. EEG frequency tagging is a technique that is increasingly used in neuroscience to study these processes. It relies on the fact that perceiving and/or producing rhythms generates periodic neural activity that translates into periodic variations of the EEG signal. In the EEG spectrum, those variations appear as peaks localized at the frequency of the rhythm and its harmonics.

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