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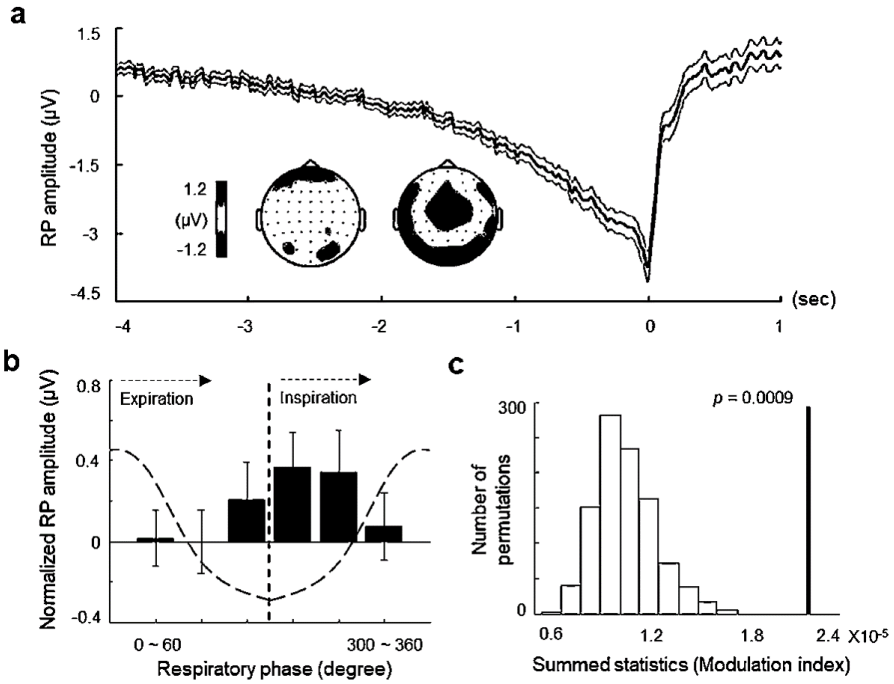
Licensing Opportunity

TTO – Technology Transfer Office

System for detecting intentions of voluntary action



Coupling between the respiratory phase and the Readiness potential (RP) amplitude. (a) RP waveform obtained from fronto-central electrodes (n = 52). Gray shaded area represents the SEM. Inserted topographies were respectively obtained from the time windows (-4 ~ -2 seconds; left) and (-2 ~ 0 seconds; right). (b) The amplitude of the RP as a function of six equally sized bins of the respiratory phase is shown. (c) Histogram of the summed statistics (i.e., Modulation index; MI) obtained from surrogate respiration data whose phase is randomly shifted. The black vertical line indicates the summed statistics from original respiration data.

Ref. Nr

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Keywords

Brain-computer interface (BCI), brain-machine interface(BMI)

Intellectual Property

WO 2021/15675, EP & US

Publications

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Description

Brain-Machine interfaces (BMIs) create a direct neural link between a user's brain and machine, bypassing the natural motor pathways. BMIs are typically trained by associating predefined triggered actions to the detection of specific changes in brain signals (e.g. EEG measured μ-ERD/ β-ERD or cortical readiness potential (RP)).

The technology relies on a unique signature for BMI applications by harnessing the finding that the intention of voluntary action can be predicted using breathing coupled with RP amplitude and/or μ-ERD/ β-ERD power measurement.

Advantages

- Allows to measure the intention of a voluntary action
- Enhances BMI performance

Applications

- Brain-machine interfaces
- Haptic device control
- Neurorehabilitation (stroke, spinal cord injury)