Sensorimotor Rhythms for Internal Forward Modelling in the Human Brain

Initiative: Freigeist-Fellowships

Bewilligung: 03.07.2017

Laufzeit: 5 Jahre

Projekt-Website: https://www.lin-magdeburg.de/forschung/abteilung-verhaltensneurologie/ag-motorisches-

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Being aware of our own self is a fundament of personhood. However, self-awareness is neither ready-made nor static. Rather, we are continuously experiencing ourselves through our own actions. But how do we become aware of what we are doing? And how does this awareness relate to our control of action? The idea underlying this project is that we control and experience our actions through the consequences we predict them to have, and that a mechanism in the brain called neural synchrony regulates how these predictions guide our control and enter our subjective experience. To test this, the project employs a unique set of non-invasive and invasive electrophysiological recordings from the human brain and spinal cord, together with targeted behavioural paradigms and causal evidence from focal dysfunctions in clinical populations. In turn, it establishes new electrophysiological tools and clinical models, including the idea of a disturbed action awareness underlying compulsions, and a method to record, for the first time, from the human spinal cord. Through this new approach spanning neuroscience, clinical neurology and psychiatry, the project aims at providing a radically new explanation of the neural mechanisms of the human condition: How does our subjective experience as agents relate to our control of action?

Projektbeteiligte

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Open Access-Publikationen

Intact Automatic Motor Inhibition in Patients with Tourette Syndrome
Strategy-based motor learning decreases the post-movement power.
Non-invasive recording of high-frequency signals from the human spinal cord
A psychophysical window onto the subjective experience of compulsion
Can moving in a redundant workspace accelerate motor adaptation?

Es werden die Institutionen genannt, an denen das Vorhaben durchgeführt wurde, und nicht die aktuelle Adresse.

01.09.2024

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