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Conference

Applied cognitive neuroscience

to improve learning and therapeutics

16.05.2024 | 17h-18h

CHUV | BH08 | Auditoire Auguste Tissot



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Advancements in cognitive neuroscience have provided profound insights into the workings of the human brain and the methods used offer opportunities to enhance performance, cognition, and mental health. Drawing upon interdisciplinary collaborations in the University of California San Diego, Human Performance Optimization Lab, this talk explores the application of cognitive neuroscience principles in three domains to improve human performance and alleviate mental health challenges.

The first section will discuss studies addressing the role of vision and oculomotor function in athletic performance and the potential to train these foundational abilities to improve performance and sports outcomes. The second domain considers the use of electrophysiological measurements of the brain and heart to detect, and possibly predict, errors in manual performance, as shown in a series of studies with surgeons as they perform robot-assisted surgery.

Lastly, findings from clinical trials testing personalized interventional treatments for mood disorders will be discussed in which the temporal and spatial parameters of transcranial magnetic stimulation (TMS) are individualized to test if personalization improves treatment response and can be used as predictive biomarkers to guide treatment selection. Together, these translational studies use the measurement tools and constructs of cognitive neuroscience to improve human performance and well-being.