
“Breaking the Wall of Multi-Brain Interactions” (by Edson Filho)

What is it about?

At the Falling Walls Lab I presented the lecture “Breaking the Wall of Multi-Brain Interactions”. In essence, I presented research and applied ideas on neuroscientific approaches to the study of cross- and multi-brain interaction mechanisms. The centerpiece of my research involves using neuroscience techniques (e.g., EEG) to map teammates’ brain functioning in an attempt to understand the neural pathways underlying the abstract notion of “social minds”. More specifically, the research effort is directed at neurologically mapping, through an integrated approach using electroencephalography (EEG), electromyography (EMG), and kinematics/dynamics monitoring, the interaction between performing dyads in a multitude of motor and socio-cognitive domains (e.g., athletics, transportation, business corporations, musicians, politics). Based on the expert performance paradigm, I aim to identify the unique neurological mechanisms mediating successful interactions among highly skilled cooperative dyads.

There are numerous applied implications of establishing and evolving knowledge pertaining to the notion of interactive brains and shared mental models. For instance, we may be able to understand the neural heuristics underlying the performance of highly effective surgical teams. We may also learn how successful sport teams, music orchestras, and airline pilots evolve implicit coordination mechanisms. Further, decisions on politics, economics, and legal corporations may be more objectively interpreted by cortical rather than abstract (e.g., self-report) lenses. We may also seek to understand the stability of loving and friendship relationships, while gauging ideas on the neural pathways of non-verbal communication and cross-cultural linguists. Ultimately, we may learn why humans were created as social beings in nature.

Edson Filho, PhD. A Fulbright Scholar recipient, Dr. Filho received a doctoral degree in sport psychology from Florida State University. Dr. Filho’s research agenda revolves around expert performance, social neuroscience across domains (e.g., sports, business, and politics), and performance psychology for peace. Currently, Dr. Filho is a post-doctoral fellow in neuroscience and

psychophysiology at the Behavioral Imaging and Neural Dynamics Center, where he studies emotional flow and multi-brain interactions using brain imaging technology. Dr. Filho has received numerous prominent academic awards, including the Dissertation Award by the American Psychological Association (Division 47 – Sport and Exercise Psychology) and his work has appeared in distinguished academic journals (e.g., Journal of Applied Sport Psychology, Journal of Applied Social Psychology) and scientific media outlets (Nature, Scientific American).

See also Dr. Filho's video-blog for Nature at the 63rd Lindau Nobel Laureate Meeting