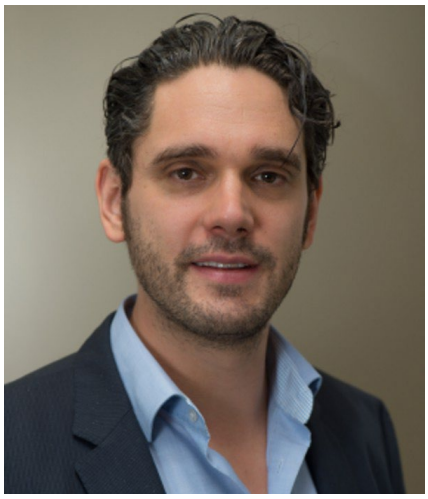
BME Seminar Series

Daniel Strauss, Ph.D.

"Neurotechnology as a Driver of Human-Centered Digital Transformation"



About the Speaker

Daniel J. Strauss holds a PhD in Mathematics/Computer Science and a PhD in Theoretical Medicine, as well as a Habilitation from Saarland University. As Full Professor of Systems Neuroscience & Neurotechnology, he directs the Systems Neuroscience & Neurotechnology Unit at htw saar's School of Engineering and Saarland University's Medical Faculty. He is also a founding member and spokesperson of the international Center for Digital Neurotechnologies Saar in Germany's state of Saarland. His research focuses on the systems neuroscience of multimodal attention and effort, and its interaction with affect. Applications include non-intrusive neurotechnologies as part of an affective artificial intelligence that decode physical but also mental states in human-machine interaction, immersive environments, and human medicine. His research projects in this domain have received extensive funding from BMBF, DFG, BMWi, BMVI, the EU, the State of Saarland, and industry.

About the Seminar

Recent advances in non-invasive and minimally intrusive neurotechnologies enable systems to infer intentions and affective states without disrupting everyday interaction. Drawing on examples from our own research, I show how decoded intentions and emotions using electrophysiological and contactless systems can help reduce sensory strain and cognitive load, improve communication, and support human-machine collaboration. Across biomedical devices, human-machine interaction, and sensory immersion, I present prototypes and studies from our lab, including hearing-insturment design, empathetic AI for self-driving cars and Industry 4.0/5.0 concepts, modern digital operations rooms, and human connection in the metaverse. Ethical safeguards, transparency, and reliability limits are addressed to outline realistic, human-centered pathways for integrating these methods into digital transformation. This includes the idea that cultural and technological evolution has outpaced our biological evolution; we are not naturally adapted to the digital environments we have created. Neurotechnology can help bridge this gap by better understanding human intentions and emotions and by reducing sensory strain in complex digital settings.

Hybrid Meeting

In person:
Diabetes Research Institute
1450 NW 10th Ave, Room 1000
Miami, FL 33136

Zoom:
Meeting ID: 949 2440 9500
https://miami.zoom.us/j/94924409500

Wednesday
February 18th, 2026
11:00 am

For additional information, please contact us at bme.coe@miami.edu