



Thesis Project Form

Title (tentative): Unveiling the neural dynamics of interacting humans during a decision-making task

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Description

Motivation and application domain

Interaction with other agents is ubiquitous in our daily lives. For instance, walking in a crowded place or lifting a sofa together, dancing or in a rehabilitation session. Also, interactions with artificial agents are always more frequent. Few studies addressed and compared the mechanisms underlying coordination in these settings. The project aims to investigate these mechanisms using hyper-scanning techniques and kinematic analysis.

General objectives and main activities

The main objective of the project is to investigate the neural activities of interacting humans which need to make decisions to achieve a collaboration. To this purpose, the project will involve several activities:

1. Based on the scientific question an experimental setup and protocol will be identified and developed integrating existing technologies in the laboratory.
2. Data collection: human participants will be recruited for the experiment.
3. Data analysis: to unveil and describe neural and kinematic synchronization between interacting agents. Compare neural activation of people interacting with human or artificial agents.

Training Objectives (technical/analytical tools, experimental methodologies)

1. Synchronization of different acquisition systems (Planar robots, EEG)
2. Experiments with humans
3. Data analysis in Matlab/Python

Place(s) where the thesis work will be carried out: DIBRIS - Pad E

Additional information

Maximum number of students: 1