



Report for the NENS training stay at the Department of Experimental Psychology, Ghent University, Belgium (October-November 2011)

Having obtained a generous NENS stipend for a training stay, I spent six weeks at the Department of Experimental Psychology at Ghent University to work with Prof. Marcel Brass and Prof. Gilles Pourtois. The goal of this stay was to learn the analysis of intracranial EEG (iEEG) data and to develop a suitable experimental design in order to use this method for studying the brain mechanisms of social cognition, especially interpersonal conflicts and shared representations.

From the beginning on, I had regular meetings with Prof. Brass and Prof. Pourtois to discuss and develop experimental ideas. The first few days I mainly used to familiarize myself with the literature, as well as to discuss and get to know other members of the department. In the following time, we had several meetings at the Ghent University Hospital to explore and analyze a pre-existing dataset that had been recorded from an epilepsy patient prior to surgery. Intracranial recordings in this patient were obtained from different electrode sites on bilateral cortical grids and strips, as well as a depth electrode. Additional scalp EEG allowed integrating the intracranial electrophysiological responses with surface event-related potentials. Prof. Pourtois showed me how to use different software and toolboxes such as Brain Vision Analyzer, Cartool, and EEGLAB in order to preprocess the data, to calculate averages, and to do single trial decompositions. By combining single trial iEEG responses during an error monitoring task with behavioral data, I was also able to look at the influence of different task parameters on the neural responses to different action outcomes. I was fascinated by the signal-to-noise ratio of iEEG data, and the many possibilities of complementary data analysis, in both time and time-frequency domains.

Further, with the help of a PhD student in Prof. Brass' lab, we piloted a new experiment investigating the influence of social beliefs on conflict and error processing. Thanks to a very efficient participant recruiting system available at Ghent University, I was able to test several participants with this newly-designed task, to record surface EEG, and to analyze the data. The results I obtained so far look very promising and I plan to use this experimental design in future experiments, using iEEG, as well as fMRI.

Overall, my training stay at Ghent University was extremely interesting and productive. Despite an intensive training, learning a lot of new techniques for analyzing iEEG data, and piloting a new experimental design, I also enjoyed meeting new colleagues, to learn about their work, and have interesting discussions with different members of the department. Furthermore, I had the opportunity to attend a Social Neuroscience Symposium held in Brussels while I was doing my training stay in Ghent.

My hope is to pursue collaborating with Prof. Brass and Prof. Pourtois, and other colleagues at Ghent University. Thanks to the NENS stipend, I can now apply and transfer the newly learned skills and knowledge to my ongoing research at the University of Geneva in Switzerland, by testing epilepsy patients with implanted electrodes in the Hospital, in order to study the neural underpinnings and the time course of intra- and interpersonal conflict detection.