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Visual Memory in a Factorial Event-Related Paradigm

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Memory, especially visual memory is essential in the human social relation process and knowledge of brain correlates of human body control is limited due to less accessibility in performing, using recently neuroimaging methods, controlled experimental paradigms. It is a fact that active repetition increases memory consolidation process and that all complex events are identified by making connections to prior knowledge. Action understanding is a complex process depending on the type of action and, therefore, the brain hemodynamic activity in parietal cortex, which is quite often correlated with the processing of visual activities during functional magnetic resonance imaging (fMRI), analyzed in view of studying a factorial event-related face repetition/recognition (FR) task. The experimental paradigm has involved a healthy adult subject called to recognize the random repetition of one popular face among several unknown faces. Inferential statistical analysis (CDA – Confirmatory Data Analysis) performed by the general linear model (GLM) in the framework of SPM (*Statistical Parametric Mapping*) has identified the areas of activation and the results have subsequently been confirmed by exploratory statistical analysis methods (EDA – *Exploratory Data Analysis*). Furthermore, in this work, we studied the transparency of statistical analysis methods creating a parallel between hypothesis-driven models and data-driven models. In the end, we found that inferential and exploratory analysis methods are efficient, associative and integrative for statistical analysis of an FR paradigm, being more complementary than competitive.

Biography

Simona Spînu is a PhD student in the second year of study, who is passionate by Medical Physics due to its important role in improving the people health and wellbeing. Her interest in statistical analysis of fMRI data sets stems from the fact that spatio-temporal characteristics of the brain activity are often unknown and variable, which renders inappropriate their evaluation by confirmatory methods only. As such, under the supervision of Prof. Radu Mutihac, she is currently carrying on research along critical assessment of confirmatory data analysis (CDA) and exploratory data analysis (EDA) of neuroimaging time series. She is actively participating in annual sessions of scientific communications of the University of Bucharest, as well as in national and international scientific conferences.

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