

This thesis is the outcome of the research I performed in the Coma Science Group for my doctoral studies, from October 2013 to July 2019. The studied topic is the characterization of different levels of disorders of consciousness using machine learning techniques.

The first three chapters provide the basic knowledge and principles of disorders of consciousness, functional neuroimaging and machine learning algorithms. The forth and fifth chapter present the performed analysis.

The research shows that unresponsive patients can be separated from minimally conscious patients. Moreover, I propose two clinical tools to assist the evaluation of the level of consciousness for clinical use. Additionally, those brain networks and regions that appear to drive the decisions of the machine learning algorithms, are highlighted.

Machine Learning applications for characterizing brain-damaged patients' level of consciousness

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