



Evaluating the DoC-Forest tool for Completely Locked-In Syndrome (CLIS)

DoC-Forest stands for Disorders of Consciousness-Forest (as in Random Forest). The tool was created by researchers from several universities to discriminate between different states of consciousness. It was tested with electroencephalography (EEG) data from Minimally Conscious State patients, patients suffering from Unresponsive Wakefulness Syndrome and healthy controls. The code is freely available on github.

The DoC-Forest is said to be “a tool to effectively determine a patient’s state of consciousness” with a performance unaffected by variations such as EEG configurations and experimental protocols. The goal of this study is to use this tool to predict levels of consciousness in patients with Completely Locked-In Syndrome (CLIS) with both electrocorticography (ECoG) and EEG data. In addition, a written documentation of the codes is expected.

First, a preprocessing of the brain signals is necessary. Then, part of the ECoG data should be used as training and validation sets. The model would then be tested on the remaining of the ECoG data plus the EEG data. The best predictors for each subject/patient should also be presented, and a comparison between EEG and ECoG data performances should be made.

Requirements:

- Basic knowledge of signal processing and machine learning
- Programming in Python

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