

Distinction of the object recognition and object identification in the brain-computer interfaces applications

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Object recognition is a complex cognitive process in which information is integrated and processed by various brain regions. Previous studies have shown that both the visual and temporal cortices are active during object recognition and identification. However, although object recognition and object identification are similar, these processes are considered distinct functions in the brain. Despite this, the differentiation between object recognition and identification has yet to be clearly defined for use in brain-computer interface (BCI) applications. This research aims to utilize neural features related to object recognition and identification and classify these features to differentiate between the two processes. The results demonstrate that several classifiers achieved high levels of accuracy, with the XGBoost classifier using a Linear Booster achieving the highest accuracy at 96% and a F1 score of 0.97. This ability to distinguish between object recognition and identification can be a beneficial aspect of a BCI object recognition system as it could help determine the intended target object for a user.