

# The Decision Decoding Toolbox (DDTBOX): A Multivariate Pattern Analysis Toolbox for Event-Related Potentials

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**Presentation Abstract Summary** In recent years, multivariate pattern analysis (MVPA) has become an increasingly popular technique for analysis of neuroimaging data. Here we present the DDTBOX, an open-source MVPA toolbox for analysis of electroencephalography data using MATLAB and the LIBSVM library. The DDTBOX uses support vector machines trained on patterns of event-related potential (ERP) amplitude data for the classification or regression of experimental variables of interest. MVPA for ERPs complements conventional hypothesis-driven ERP analysis, and permits the detection of subtle decision-related information that might not be evident in conventional ERP analyses. MVPA for ERPs also allows researchers to perform an exploratory search for information in situations where no ERP component is known to be specifically linked to a cognitive process of interest. The DDTBOX is an easy-to-use and open-source software package that allows researchers to derive information time-courses for various cognitive processes. It can be applied to data from a variety of experimental paradigms, and may therefore prove a valuable tool for the neuroimaging community.

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