Single Item Decoding Toolbox (9/10/2019)

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**Introduction**

The single item decoding (SID) toolbox is divided into two core scripts: (1) **SI\_MVPA\_v3** (2) **SI\_analysis\_MVPA\_v3** – both of which utilize their own collection of subscripts. The script **SI\_Classify** defines requisite inputs for **SI\_MVPA\_v3** whereas **SI\_Analysis** defines requisite inputs for **SI\_analysis\_MVPA\_v3**. All scripts have extensive comments with respect to their function, and this document serves as a higher level review *what* functions the scripts implement. As such, for detailed description of variable names, algorithms, etc., please refer directly to the code.

**Code Description**

***SI\_MVPA\_v3():*** This script does all the heavy lifting. At its core, it merely serves as a wrapper for the inbuilt Matlab function **fitcecoc** which performs the actual classification analysis. The main function of this script is to create confusion matrices for each subject, which are then analyzed via **SI\_analysis\_MVPA\_v3**.

***-> Dependent on SI\_debias***

***SI\_analysis\_MVPA\_v3():*** This script analyzes the resulting confusion matrices generated by SI\_MVPA\_v3. Many of the results in the manuscript are based upon data generated from this analysis script.

***-> Dependent on SI\_Rank***