

This directory contains two code files for classification.

The file `classify_within_individuals.py` provides the code used in Figure 4 L&M to classify activity vectors into their underlying training conditions based upon the splitting of the activity vectors within individuals into training and test batches. Data for this classification can be found in the `"data_within_individuals"` directory. There are mat files containing training and test activity vectors. Note that the last numerical index of each file indicates how many neurons are concatenated. i.e. `inds1t-1.mat` consists of the neural activity of AWA only while `inds1t-2.mat` consists of the activities of AWA and ASH, `inds1t-3.mat` consists of AWA, ASH, and AWCON. The activity vectors are binned (20-frames kernel) to attenuate overparameterization and normalised. The order of neurons is:

'AWA','ASH','AWCON','AWB','AWCOFF','ASJ','ADL','ASER','ASI','URX','ASK','ASEL','AVA','AVE'

The second file `"classify_by_individuals.py"` contains the code for classification based upon averaging odour trials for each animal (= a single vector per animal) and randomly allocating animals to training and test batches (Figure 4-figure supplement 7F). The data is found in the directory `"data_by_individuals"`.

Note that the last numerical index of each mat file indicates how many neurons are concatenated. i.e. `I1.mat` consists of the neural activity of AWA only while `I2.mat` consists of the activities of AWA and ASH, `I3.mat` consists of AWA, ASH, and AWCON

The order of neurons is:

'AWA','ASH','AWCON','AWB','AWCOFF','ASJ','ADL','ASER','ASI','URX','ASK','ASEL','AVA','AVE'

The activity vectors are binned (20-frames kernel) to attenuate overparameterization and normalised.

The labels for each activity vector (= underlying training conditions) are coded as follows:

- 1 - {'NAIVE'}
- 2 - {'STAPM'}
- 3 - {'STAPT'}
- 4 - {'STAVM'}
- 5 - {'STAVT'}

Also note that cross validation is based on random selection and can produce different results each time it is executed. While numeric values of the F1 scores for each neuron might fluctuate, the general tendencies are consistent.