Instructions to run the codes

The following files should be in the same location:

❖ Functions called:

➢ `grossberg.m` >> function for the reference network, G-N

➢ `eckhorn.m` >> function for the pulse-coded neural network (PCNN), E-N

➢ `eckhorn_noadapt.m` >> function for the PCNN, but without incorporating the adaptive weights

➢ `adapt.m` >> function for the adaptation algorithm

➢ `spikesMPA.m` >> function for transforming spike-activities to level-activities

➢ `step1.m` >> unit step function

❖ Scripts to run:

➢ `plot_figures3.m` >> script to plot the G-N response to three-different stimuli conditions

▪ functions called: `grossberg.m`

➢ `plot_figures5.m` >> script to plot the E-N (without adaptation) response to three-different stimuli conditions

▪ functions called: `eckhorn_noadapt.m`

➢ `generate_performance_surface.m` >> script to generate the empirical surface (choose: conditioned or conditioning) and writing the files ConditionedEmpricalData.xls and ConditioningEmpricialData.xls. NOTE: This might take about 2hours to run.

▪ functions called: `grossberg.m`, `eckhorn.m` and `spikesMPA.m`

➢ `plot_performance_surface.m` >> script to plot the performance surface 3D or 2D (side view) of either conditioned or conditioning surfaces by loading the respective .xls file

➢ `implement_adaptation.m` >> script to run the adaptation algorithm on the E-N and writes the result into AdapData.xls. NOTE: This might take about 1hour to run.

▪ functions called: `grossberg.m`, `eckhorn.m`, `spikesMPA.m` and `adapt.m`

➢ `plot_learningcurves.m` >> script to load the AdapData.xls and plot the learning curves: weights learning curves or conditioning learning curve, and gradient estimates.