coursera

Item Navigation

IMPORTANT: Quiz Instructions

In this quiz, you will take your first step into the process of encoding. The aim of this quiz is to help you come to a better understanding of how to calculate a spike-triggered average and its use in determining the relevant features within a stimulus. We have provided you with an experimentally recorded set of spikes recorded from the famous H1 motion-sensitive neuron of the fly (in this case, Calliphora vicina) from the lab of Dr Robert de Ruyter van Steveninck. This neuron responds to motion: your job is find out how exactly it processes a motion stimulus. You are also given the velocity of a pattern of vertical bars experienced by the fly during the recording of those spikes. Your job is to write a bit of Matlab/Octave /Python code to read the data and compute the spike-triggered average from methods you have learned throughout this week's lectures.

A few of these questions are based on exercises from Chapter 1 in the textbook Theoretical Neuroscience by Dayan and Abbott which you can access here.

NOTE ON DOWNLOADING CODE AND DATA: Currently, downloaded files are automatically renamed to begin with a long string of random characters (we hope to have this fixed soon). Sometimes the file type is also changed. In order to ensure that all of the files in the quizzes work correctly, make sure that after downloading each file you rename it to the file name shown in the original quiz question. If you still have trouble getting any of the files to open feel free to search or inquire on the class Discussion Forums.

Below is the code you'll need to complete this quiz.

MATLAB/Octave:

quiz2
M File
Download file

compute_sta
Download file