

Tutorial

Bipin Rajendran

Department of Electrical Engineering, I.I.T. Bombay

bipin@ee.iitb.ac.in

October 13, 2014

- Work/discuss with partners in your group.
- Write down your ideas, thought process, any assumptions you are making
- Draw diagrams, graphs, pseudo-code etc.
- Before coding, think of the many ways you could approach the problem, write what you expect from the simulation before doing it.
- I want to know what methods did not work.
- Grading is based not on final results, but your thought process and your ideas to solve/approach the problem (your scribble notes).
- Document (roughly) all your thoughts, as it will help us in grading.
- You have 60 mins to work on this, each group should save all the codes you have written and email it to the TA by 13th October, 2015.

SNN based Coincidence detector

There are two Poisson stimuli P and Q whose arrival rates are given by $\lambda_P = 1/10$ ms and $\lambda_Q = 1/20$ ms. Design a spiking neural network that will take these stimuli as the inputs and generate a spike output if and only if the two stimuli arrive close to each other (inter-stimulus arrival time ≤ 3 ms).

Quantify the performance of your network by calculating the number of false positives and false negatives at the output of the network for a total simulation time of 10 sec.

Email your codes to profb.iitb@gmail.com by 8PM, 13th October, 2015.