

## Assignment 4

### for NeuroComputing/ Theoretical Neuroscience 2013

1. Write a program that implements STDP for one synapse. This synapse should be driven by a regular spike train that leads to a response of the postsynaptic neuron within a uniformly distributed delay of 1-30ms. Show how the synaptic value changes with repeated synaptic events.
2. The program `weightDistribution.m` of Table 4.1 uses exponential distributed rate values of presynaptic neurons and the postsynaptic neurons, and we showed that this leads to a Gaussian distributed. What is the resulting weight distribution if these rate values are chosen from a Poisson distribution? Show this distribution by a modified `weightDistribution.m` program and include a brief explanation (one or two sentences) in your email.

Send your answers to [prof6508@cs.dal.ca](mailto:prof6508@cs.dal.ca) with subject line A4. Please submit your work in one program for both questions. This assignment must be received on Thursday, Feb 14, before 4pm.