Project Proposal:
Pattern Recognition Using a Neural Network for Storing Pictures Analogically

Field: Biological Signals and Systems

Description:
Synaptic Time Dependent Plasticity (STDP) is a synaptic mechanism in the brain which is believed to be one of the ways that the brain remembers. More specific, it is connected to the associative memory, where it dynamic is based on the neural activity of the pre-synaptic and post-synaptic neurons activity. It was extensively investigated in one synapse, but in a neural network it is still an open question.

Aim of the Project:
The aim of the project is to build a simulator (in Matlab) which imitates a neural circuit with STDP, where based on this, we will build a memory device for storing pictures analogically. This project has some practical implications and this will be the main focus of the project.

Supervisor: Dotan Di Castro, mail: dot@tx.technion.ac.il, phone: 04-829-5079

Duration: One semester (may be extended to two semesters)

Requirements:
- Biological Signals and Systems (046326) or Biological Neural Networks (049041)
- Some Matlab and C/C++ programming skills