School of Engineering

Embedded Electrical and Computer Engineering

MASTER ORAL DEFENSE

TITLE: *Development of an Artificial Brain Model*

PRESENTER: **Pooja A. Shah**

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COMMITTEE CHAIR: **Dr. Hamid Mahmoodi**
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ABSTRACT

This talk presents a system level approach to neuronal modeling and simulation for the brain's neo-cortex. Development of an Artificial Brain Model using Matlab-Simulink is presented. The development of single neuron has been followed by layers leading to mini-columns. Information processing and transmission within and to a next neuron is a main focus which is based on the concept of Action Potential. For verification, the outputs obtained by simulating a single neuron are compared with that obtained from NeoCortical Simulator (NCS) and on the System Level the outputs obtained from Matlab-Simulink are compared with the McCulloch Pitts Neuron model- the reference source. Digitizing the model, effective attempts have been made to produce a low power digital electronic neural network which is shown by example of few interconnected neurons.