San Jose State University
## Department of Electrical Engineering

Mini-Project II (Due Oct. 19 midnight)

Bit-Accurate Matlab (or other SDL) Model for Neural Networks

Using each of the three different bit-accurate MACs developed in the previous miniproject, implement the following forward data path of neuron nodes, weight coefficients, and ReLU functions.

For the fixed-point MAC, change the bit widths from 2 to 16, including input activations and weights, discuss how the precision of the NN varies, in comparison with µ-law and F16.

Write an insightful report, 10-20 pages, including (lots of) graphs and your discussion.
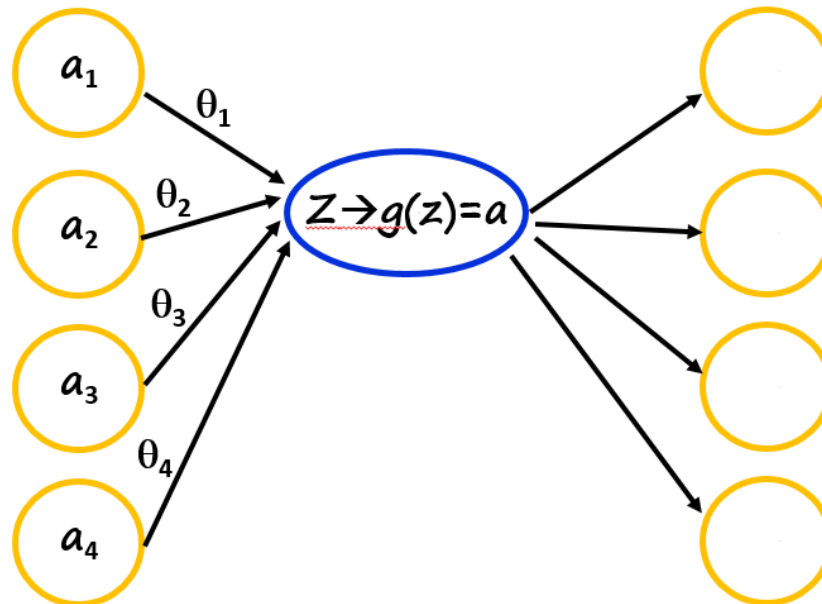
In addition, your report should include the source code listing, compilation report, and screen shots showing the "bit-accurate" results of the test cases, along with detailed and in-depth discussion of the design process.

Note that the models need not be pipelined.

Test vectors for a_i's and θ_i's, all signed fractionals, will be sent later.

NOTE: To show the authenticity of your work, attach the last two digits of your student ID to every signal and variable name used in your code. For example, if your SID is 123456789, signal or variable names should be x89, a89, etc. Each of the screen captures of your code and simulation results should bear these signal names.