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CS4341 Project 2, Artificial Neural Networks

Experimental Writeup

Experiment 1: Holdout Percentage, Data, and Error Rate

Experiment 2: Hidden Layer Count and Error Rate

Program Description and Simplifying Assumptions (Question 3)

While we implemented our neural network in Python, we opted to build a modular program structure that would encourage customizability going forward. We built a NeuralNetwork class that manages the whole network, as well as a Node class and a Synapse class that connect layers together. The size of a network constructed using our classes can be controlled directly via parameters input on the command-line in the case of hidden layer or via variables in the NeuralNetwork in the case of the other layers. The network topology is mostly set in stone—that is, the network always accepts two-dimensional input and executes an exclusively binary classification. We believe that configuration was most appropriate for this assignment, however we recognize there are classification problems in Computer Science that require multi-attribute output.