

Abstract

Technology development running to systems that could adapt or could change itself from some trigger from condition. One of adaptive method that has been developed for years is Neural Network (NN). NN is not only has so many advantage but also some disadvantages. One of them is there is no exact way to find out how many hidden neuron that should be used to get minimum Mean Square Error (MSE).

This research, Parallel Algorithm using GPU, trying to solve this problem that this algorithm could find out the parameters using parallel so the computation could be faster with lower resource.

Using Non-Uniform Memory Access design in computation show the result is so significant that GPU computation could compute 800 times faster than CPU on 150 NN computation. This speedup above the number of GPU core that using 128 core although it has disadvantages that the computation still using the same processor utilization and even higher memory resource to store complete data.

Keywords: NN, MSE, *Hidden Neuron*, GPU, CUDA, *Non-Uniform Memory Access*, CUDA core.