A Study on Aspect of Artificial Neural Networks for Machine Learning

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Abstract: Artificial Neural Network (ANN) uses the processing of the brain as a basis to develop algorithms that can be used to model complex patterns and prediction problems. In our brain, there are billions of cells called neurons, which processes information in the form of electric signals. External information/stimuli is received by the dendrites of the neuron, processed in the neuron cell body, converted to an output and passed through the Axon to the next neuron. The next neuron can choose to either accept it or reject it depending on the strength of the signal. Neural network architecture is presented as one approach to the design and implementation of intelligent control systems. Neural networks can be considered as massively parallel distributed processing systems with the potential for ever-improving performance through dynamical learning. The nomenclature and characteristics of neural networks are outlined. Two simple examples are presented to illustrate applications to control systems: one is fault isolation mapping, and the other involves optimization of a Hopfield network that defines a clock less analog-to-digital conversion. Deep learning is one of the types of artificial intelligence and machine learning; basically, deep learning behaves like a human brain, or we can say that it processes the data like the human brain. In deep learning, we collect data from different resources in different complex patterns, such as photos and text, and make predictions as well. As we are also able to automate the different tasks which require the human brain.

Keywords: Artificial neural networks

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