IEEE STUDENT BRANCH – BPHC

Machine Learning Team

MODULE 1 – INTRODUCTION TO NEURAL NETWORKS

Basics of Neural Networks

What are Neural Networks?

In the 1980's the famous computer scientist Geoffrey Hinton, aimed to develop Machine Learning techniques and compare them and their functionalities to that of the Human Brain. "Neural Networks" was conceptualized by him, an algorithm used in Deep Learning which supposedly functions like the neurons do in the brain (It's still not totally clear about the functioning mechanism of the actual neurons in the brain). From the term Neural Networks, we can say that it is a network comprised of neurons. There is an input layer, and an output layer. All the layers between those are termed as "hidden layers". To explore more about these, and to get an idea about approaching the problem statement, do check out the links below. Also, do not restrict yourselves to exclusively referring to these links, and keep exploring!

Links:

Numpy Tutorial: https://www.youtube.com/watch?v=QUT1VHiLmmI

Numpy Documentation: https://numpy.org/doc/1.22/reference/index.html#reference

Basic Overview: https://www.freecodecamp.org/news/deep-learning-neural-networks-explained-in-plain-english/

Andrew Ng Deep Learning Spec Course 1: https://www.youtube.com/playlist?list=PLkDaE6sCZn6Ec-XTbcX1uRg2_u4xOEky0

Sigmoid Function Explanation: https://www.youtube.com/watch?v=NOwUClQ7v3c

Simple Idea of Gradient Descent: https://www.youtube.com/watch?v=qg4PchTECck

Visual Understanding of Backpropagation: https://www.youtube.com/watch?v=Ilg3gGewQ5U