Deep Learning ANN

Instructors:

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Sr. Data Scientist and lecturer at iNeuron.ai with working experience in computer vision, natural language processing and embedded systems. Hands-on experience leveraging machine learning, deep learning, transfer learning models to solve challenging business problems. Also, he has a vast interest in Robotics.

Curriculum:

Introduction

• Introduction to Deep Learning Preview

• Importance of Deep Learning

• Why you should study Deep Learning? (Motivation)

• ANN vs BNN

• The first Artificial Neuron

Perceptron

• Overview of Perceptron Preview

• More about Perceptron

• Perceptron implementation using python - 1

• Perceptron implementation using python - 2

• Perceptron implementation using python - 3

• Perceptron implementation using python - 4

• Perceptron implementation using python - 5

• Perceptron implementation using python - 6

• Perceptron implementation using python - 7

• Python scripting & modular coding for Perceptron

• Python logging basics and docstrings

• Python packaging, Github actions, and PyPI

ANN -1

• Multilayer Perceptron

• Forward propagation

• Why we need Activation function?

• ANN implementation using tf.keras - 1

• ANN implementation using tf.keras - 2

• ANN implementation using tf.keras - 3

• ANN implementation using tf.keras - 4

• ANN with Callbacks | Tensorboard | Early Stopping | Model Checkpointing

ANN - 2

• Vector

• Differentiation

• Partial differentiation

• Maxima and minima concept

• Gradient descent basics

• In-depth understanding of Gradient descent with mathematical proof

ANN - 3

• Chain rule

• Back propagation

ANN - 4

• General problems in training Neural Networks

• Vanishing and Exploding gradients

• Activation function basics

• Weight initialization

• Activation functions - 1

• Activation functions - 2

• Activation functions - 3

• Transfer learning

• Batch normalization -1

• Batch normalization -2

• Batch normalization -3

ANN - 5

• Introduction to fast optimizers

• Momentum optimization

• NAG

• Elongated bowl problem | AdaGrad

• RMSProp

• Adam

• Loss functions

- Regularization
- Dropout