

Specialised Programme on Big data Analytics (4 Weeks)

Introduction to Neural Network and Deep Learning

Neural Network and its applications, Single Layer Neural Network, Constructing Neural Networks model, Overview of Feed Forward Neural Network, Back Propagation, Activation Functions: Sigmoid, Hyperbolic Tangent, Introduction to deep Learning, Why Deep Learning is taking off? Deep Learning Architecture, Introduction to Tensor flow, Introduction to Keras

Introduction to Deep Learning

Introduction to Tensorflow and Keras Introduction to Auto-encoders Neural Network and its applications Single layer neural Network Activation Functions: Sigmoid, Hyperbolic Tangent, ReLu Overview of Back propagation of errors .Deep Learning Essentials Early Stopping for Preventing Overfitting ,Dropout, Training Methods for Neural Network (High-Level Overviews only), Update of weights with single training set element, Batch Training, Minibatch Training, Stochastic Gradient Descent ,Training Methods for Neural Network (High-Level Overviews only) ,Classic Backpropagation Momentum Backpropagation ADAM, L1 and L2 Regularization

Convolutional Neural Network using PyTorch

Introduction to PyTorch Framework Pytorch vs Tensorflow ,Convolutional Concept, Inception Network ,Transfer Learning, Data Augmentation, Object Detection YOLO Algorithm (High-Level Overview) Recurrent Neural Network (RNN) using Pytorch, RNN Concept ,Types of RNNs, Vanishing gradients with RNNs, Gated Recurrent Unit (GRU) - (High-Level Overview only) Long Short-Term Memory (LSTM) - (High-Level Overview only)

Introduction to NLP

Overview of NLP, Pre-processing, Need of Pre-processing Data, Introduction to NLTK, Using Python Scripts, Shallow Parsing, Deep Parsing, Text Featurization technique, NLP with Machine Learning and Deep Learning, Word2Vec models, Building NLP Application.

Project Work