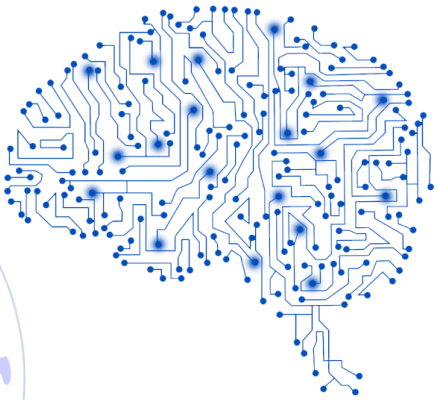
Machine Learning
Deep Learning



Python | Machine Learning | Deep Learning

We are ready to serve Latest IT Trends, Are you ready to learn..?

New Batches Info

START DATE :

TIMINGS :

DURATION :

TYPE OF BATCH :

FEE :

FACULTY NAME :

Module 1: Python Program

Introduction

- ✓ What is Python Programming?

Installation

- ✓ Installing Python
- ✓ Choosing an editor or IDE

Python Basics

- ✓ Building Hello World
- ✓ Variables and expressions
- ✓ Python functions
- ✓ Conditional structures
- ✓ Loops

Working with Dates and Time

- ✓ The date, time, and datetime classes
- ✓ Formatting time output
- ✓ Using timedelta objects
- ✓ Working with calendars

Working with Files

- ✓ Reading and writing files
- ✓ Working with OS path utilities
- ✓ Using file system shell methods

Working with Web Data

- ✓ Fetching internet data
- ✓ Working with JSON data
- ✓ Parsing and processing HTML
- ✓ Manipulating XML

Introduction to NumPy

- ✓ NumPy overview
- ✓ Creating NumPy arrays
- ✓ Doing math with arrays
- ✓ Indexing and slicing
- ✓ Records and dates

Weather Data with NumPy

- ✓ Weather data overview
- ✓ Downloading and parsing data files
- ✓ Temperature analysis
- ✓ Integrating missing data
- ✓ Smoothing data
- ✓ Computing daily records
- ✓ Challenge
- ✓ Solution

Introduction to Pandas

- ✓ Pandas overview
- ✓ Series in Pandas
- ✓ DataFrames in Pandas
- ✓ Using multilevel indices
- ✓ Aggregation

Baby Names with Pandas

- ✓ Baby name overview
- ✓ Loading datasets
- ✓ Name popularity
- ✓ A yearly top ten
- ✓ Challenge
- ✓ Solution

Data Munging Basics

- ✓ Filter and select data
- ✓ Treat missing values
- ✓ Remove duplicates
- ✓ Concatenate and transform data
- ✓ Group and aggregate data
- ✓ Chapter Quiz

Data Visualization Basics

- ✓ Create standard line, bar, and pie plots
- ✓ Define plot elements
- ✓ Format plots
- ✓ Create labels and annotations
- ✓ Create visualizations from time series data
- ✓ Construct histograms, box plots, and scatter plots

Module 2: Machine Learning

Supervised Learning

- ✓ An Approach to Prediction
- ✓ □ Least Squares and Nearest Neighbors
- ✓ Statistical Decision
- ✓ Regression Models

Linear Methods for Regression

- ✓ The Gauss–Markov Theorem
- ✓ Multiple Regression
- ✓ Forward- and Backward-Stepwise Selection
- ✓ Ridge Regression
- ✓ Lasso Regression
- ✓ Example using Python

Linear Methods for Classification

- ✓ Linear Regression of an Indicator Matrix
- ✓ Linear Discriminant Analysis
- ✓ Logistic Regression
- ✓ Rosenblatt's Perceptron Learning Algorithm
- ✓ Example using Python

Kernel Smoothing Methods

- ✓ One-Dimensional Kernel Smoothers
- ✓ Local Linear Regression
- ✓ Local Polynomial Regression
- ✓ Mixture Models for Density Estimation and Classification
- ✓ Example using Python

Model Selection

- ✓ Bias, Variance and Model Complexity
- ✓ Optimism of the Training Error Rate
- ✓ Vapnik–Chervonenkis Dimension
- ✓ Cross-Validation

Model Inference & Averaging

- ✓ Bootstrap and Maximum Likelihood Methods
- ✓ Relationship Between the Bootstrap and Bayesian Inference
- ✓ The EM Algorithm
- ✓ Bagging
- ✓ Example using Python

Tree-Based Methods

- ✓ Regression Trees
- ✓ Classification Trees
- ✓ Bump Hunting
- ✓ MARS: Multivariate Adaptive Regression Splines
- ✓ Example using Python

Boosting

- ✓ Steepest Descent
- ✓ Gradient Boosting
- ✓ Regularization
- ✓ Interpretation
- ✓ Example using Python

Neural Networks

- ✓ Fitting Neural Networks
- ✓ Over fitting
- ✓ Hidden Units
- ✓ Multiple Minima
- ✓ Single, Multi-Layer Perceptron
- ✓ Example using Python

Support Vector Machines (SVM)

- ✓ Support Vector Classifier
- ✓ Generalizing Linear Discriminant Analysis
- ✓ Flexible Discriminant Analysis
- ✓ Penalized Discriminant Analysis
- ✓ Example using Python

K-Nearest-Neighbor Classifiers

- ✓ Prototype Methods
- ✓ K-means Clustering
- ✓ Vector Quantization
- ✓ Gaussian Mixtures
- ✓ k-nearest Neighbors
- ✓ Example using Python

Unsupervised Learning

- ✓ The Apriori Algorithm
- ✓ Unsupervised as Supervised Learning
- ✓ Generalized Association Rules

- ✓ K-means Cluster Analysis
- ✓ Hierarchical Clustering
- ✓ Principal Components, Curves and Surfaces
- ✓ Non-Linear Dimension Reduction
- ✓ Example using Python

Random Forests

- ✓ Variable Importance
- ✓ Random Forests and Over fitting
- ✓ Bias
- ✓ Adaptive Nearest Neighbors
- ✓ Example using Python

Module 3: Artificial Neural Networks

Introduction to Tensor Flow

Perceptrons

Artificial Neural Networks

Gradient Descent

Back Propagation

Convolutional Neural Networks

Recurrent Neural Networks

Case Study

Module 4: Natural Language Processing

Introduction

Recognizing Natural Language Processing Applications

Understanding NLP Tasks

Tokenizing Text

Removing Stopwords

Identifying Bigrams

Stemming and POS Tagging

Disambiguating Word Meanings

Contrasting Rule Based and Machine Learning Approaches

Understanding Types of Machine Learning Problems in NLP

Auto-summarizing Text

Auto-summarizing Text Using a Rule-based Model
Downloading an Article

Preprocessing Article Text

Extracting a Summary

Classifying Text Using Machine Learning

Outlining the Objective

Building a Corpus of Tech Articles

Module 5: Deep Learning

Introduction

- ✓ Introduction to Computer vision
- ✓ What is Open CV?
- ✓ Installation of OpenCV
- ✓ Download Python
- ✓ Install Python

Basics of Computer Vision & open CV

- ✓ Working with images
- ✓ Forming images
- ✓ Storing images in Computer
- ✓ Gray scaling
- ✓ Color Spaces
- ✓ Representation of image
- ✓ Practical approach of creating images

Image Manipulations

- ✓ Transformations
- ✓ Image Translations
- ✓ Rotations
- ✓ Scaling, re-sizing & Interpolations
- ✓ Image Pyramids
- ✓ Cropping
- ✓ Brightening
- ✓ Darkening

- ✓ Image Masking
- ✓ Blurring
- ✓ Sharpening
- ✓ Dilation, Erosion
- ✓ Edge Detection
- ✓ Example

Image Segmentation

- ✓ Segmentation and contours
- ✓ Sorting contours
- ✓ Matching contour shapes
- ✓ Line detection
- ✓ Circle Detection
- ✓ Blob Detection
- ✓ Example

Object Detection

- ✓ Introduction
- ✓ finding specific pattern in an Image
- ✓ Feature description
- ✓ Finding corners
- ✓ SIFT
- ✓ SURF
- ✓ FAST
- ✓ BRIEF
- ✓ Detect a specific object using webcam
    - Face Detection
    - Eye Detection
    - Human Detection
    - Car Detection
    - Pedestrian detection

Module 6:Tableau Desktop

Tableau Introduction

- ✓ Importance of Data
- ✓ Why Visual Analysis ?
- ✓ Why Tableau ?
- ✓ Tableau Extensions
- ✓ Understanding Navigation

Tableau Products

- ✓ Tableau Desktop
- ✓ Tableau Prep
- ✓ Tableau Students Edition

- ✓ Tableau Server
- ✓ Tableau Public
- ✓ Tableau Reader
- ✓ Tableau Online

Tableau Terminology

- ✓ Dimensions
- ✓ Measures
- ✓ Shelves
- ✓ Pills
- ✓ Show me
- ✓ Data Pane
- ✓ Groups
- ✓ Sets
- ✓ Dashboard
- ✓ Worksheet
- ✓ Stories

Data Connection

- ✓ Types of Data Connections
- ✓ Live Connection
- ✓ Extract Connection
- ✓ What is Extract File

Working with Data

- ✓ Data Types
- ✓ Data Values
- ✓ What is Data Source ?
- ✓ Connecting to DataSource
- ✓ Joins in Tableau
- ✓ When to use Joins
- ✓ Data Blending
- ✓ When to use Data Blending
- ✓ Joins vs Data Blending
- ✓ Custom SQL in Tableau
- ✓ Data refresh
- ✓ Filtering
- ✓ Sorting
- ✓ Hierarchies

- ✓ Drill down & Roll ups
- ✓ Grouping
- ✓ Creating Sets
- ✓ Working with Sets
- ✓ Parameters
- ✓ Creating Parameter
- ✓ Parameter Controls
- ✓ Aggregation

Visualizing Data

- ✓ Charting
- ✓ Line Graphs
- ✓ Blended Axis
- ✓ Dual vs Blended axis
- ✓ Horizontal Bar chart
- ✓ Vertical Bar Chart
- ✓ Stacked Bar Chart
- ✓ Pie Charts
- ✓ Gantt Charts
- ✓ Mapping
- ✓ Heat Maps
- ✓ Filed Maps
- ✓ Geo-Coding
- ✓ Formatting
- ✓ Advanced Charting
- ✓ Water Fall Charts
- ✓ Donut Charts
- ✓ Funnel Charts
- ✓ Lollipops Charts
- ✓ Whisker plots
- ✓ Scatter plots

Calculations

- ✓ String Calculations
- ✓ Date Calculations
- ✓ Boolean Calculations
- ✓ Functions

Statistical Models

- ✓ Linear Model
- ✓ Logarithmic Model
- ✓ Exponential Model
- ✓ Polynomial Model

Dashboards

- ✓ What is Dashboard ?
- ✓ Basic Dashboarding
- ✓ Advanced Dashboarding
- ✓ Formatting
- ✓ Actions
- ✓ Creating a Story

Sharing the Visuals

- ✓ Tableau Reader
- ✓ Tableau Public
- ✓ Tableau Server
- ✓ Tableau Online