Machine learning using python

The course will explain how to build systems that learn and adapt using examples from real-world applications. The class will be self-contained (i.e., I will not assume any previous knowledge); a review session on probability and information theory will precede those chapters in need of background knowledge. The main topics include linear discriminants, neural networks, decision trees, support vector machines, unsupervised learning, reinforcement learning, etc.

Syllabus

- Fundamental Programming Concepts
- Basic Python Syntax
- Loops, Functions
- Conditional statements
- Basic Python Data Structures
- Python Packages and Modules
- Importing Your Own Code
- Installing Packages using PIP
- Data set
- Types of data sets
- Introduction numpy
- Python NumPy array
- operations on the Numpy array
- NumPy and random data
- NumPy array with images
- Introduction to pandas
- Series
- Data Frame
- Reading csv, excel, Json data
- Handling missing data
- Pandas group by
- Introduction to Matplotlib
- Introduction to machine learning
- Types of machine learning
- Linear regression
- Cross-validation and bias-variance trade-off
- Logistic regression

- K nearest Neighbours

- Decision Trees and Random forests

- Support Vector Machines

- Kmeans Clustering

- ·Principle Component Analysis

- **4 mini Projects**

What you will learn

- Understand the landscape of Python data visualization libraries
- Create static and interactive charts using specialized Python libraries
- Develop an appreciation for what is involved in Learning models from data
- Understand a wide variety of learning algorithms
- Understand how to evaluate models generated from data
- Apply the algorithms to a real problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models

SKILLS GAIN