Introduction

This introductory workshop on Artificial Intelligence gives an overview of many concepts, techniques, and algorithms in Fuzzy Logic, machine learning, and beginning with topics such as classification and linear regression and ending up with more recent topics such as working with neural network, network training, adaptive training, Best Meaning Fitting, Support Vector Machine etc. The course will give the student the basic ideas and intuition behind modern machine learning methods as well as a bit more formal understanding of how, why, and when they work.

TOPICS TO BE COVERED

Module 1
Introduction to Artificial Intelligence
Applications of AI & Current trends
Different AI Techniques
AI Agents
PEAS Analysis
Agent Environment Analysis
Different Types of AI Agents
Machine Learning
Introduction and Applications of Machine Learning
Supervised and Unsupervised Learning
Classification & Regression Problem
Clustering, Anomaly Detection
Getting started with Linear Regression
Mathematics behind Linear Regression
Building Linear Model
Gradient Descent Algorithm
Error Correction

Module 2
Getting started with python programming
Installing Anaconda
Python variables, lists, tuples and dictionaries
Control Structure in Python
Defining Functions in Python
Using modules and packages

Numpy for Data computation

Matlplotlib for Data Visualization
Pandas for data exploration
Using scikit-learn
Creating linear regression models using scikit-learn

Module 3
Getting Started with Artificial Neural Networks
Introduction to neurons, weights
Activation Function
Input Layers, Hidden Layers and Output Layers
Single layer perceptron Model
Multilayer Neural Network
Back Propagation Algorithm introduction
Programming Neural Network using Python
Building Regression models using ANN
Classification Examples using ANN

Module 4
K Nearest Neighbor Models
Using KNN for Data Classification
Building Models using KNN
Support Vector Machine – Applications and Mathematics
Using SVM for classification
Projects

Projects covered – (All projects covered will be based on Real time data access of internet)

- Character Recognition Algorithm
- Cancer Diagnostic Algorithm
- Iris Clustering

Boston Housing Prizes Prediction

Essentials from student's side

A laptop which should have at least 1GB RAM with Windows OS. The USB ports of the laptop should be in working condition and each participant should have Smart phone (preferably Android) with Internet connection

Benefits

- Participants of this workshop will learn how large enterprises are implementing AI-based solutions to improve their productivity.
- Hardcore Training from Industrial Experts for their particular domain.

- Hands on Demonstration of Latest Techniques & tools
- Interactive Query Session
- Working on real time projects
- Participation Certificate from Wissenaire, IIT Bhubaneswar and Organizing Partner.

Contact

D. Karthik Datta
9493191713
dkd11@iitbbs.ac.in