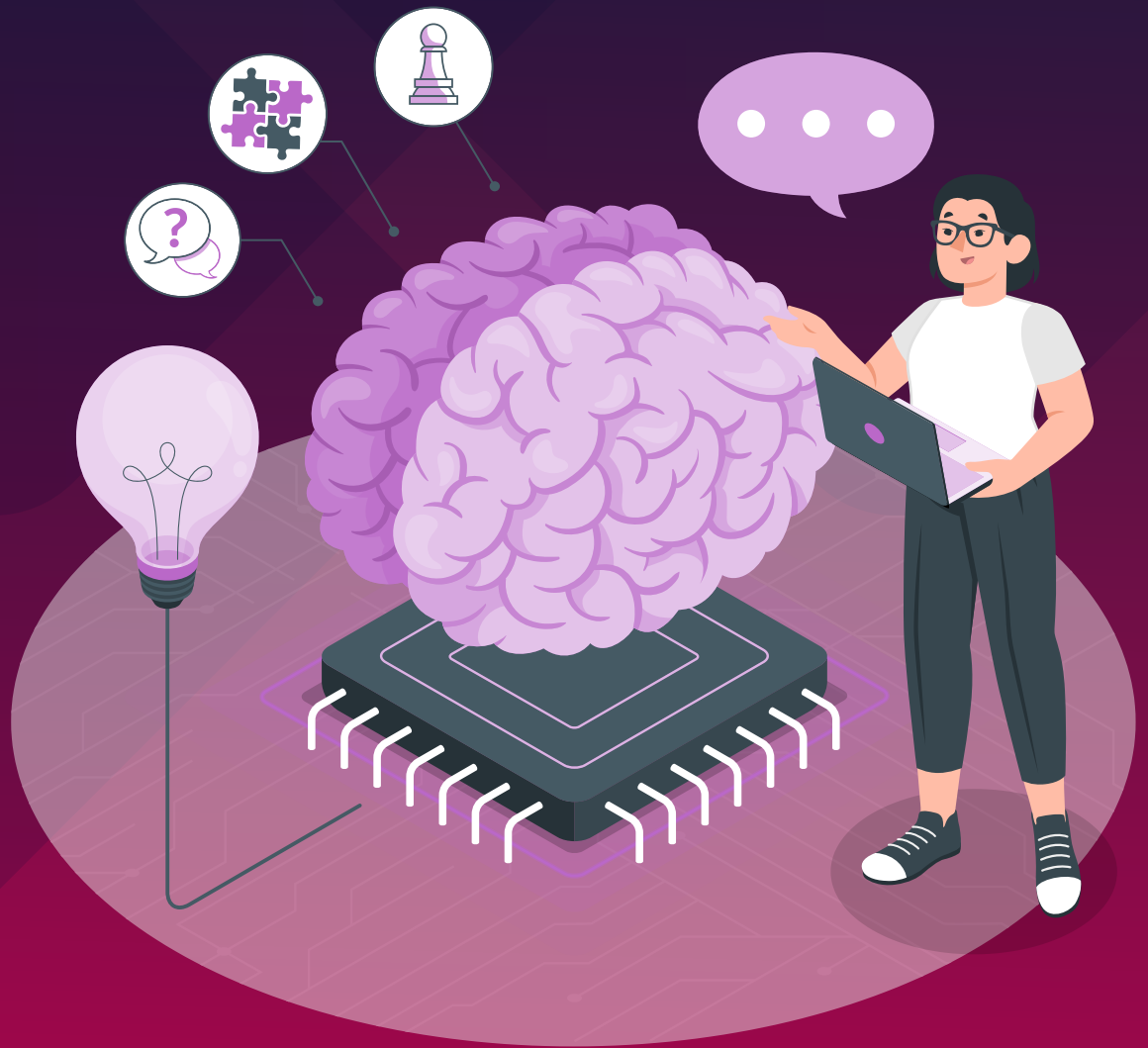


MACHINE LEARNING



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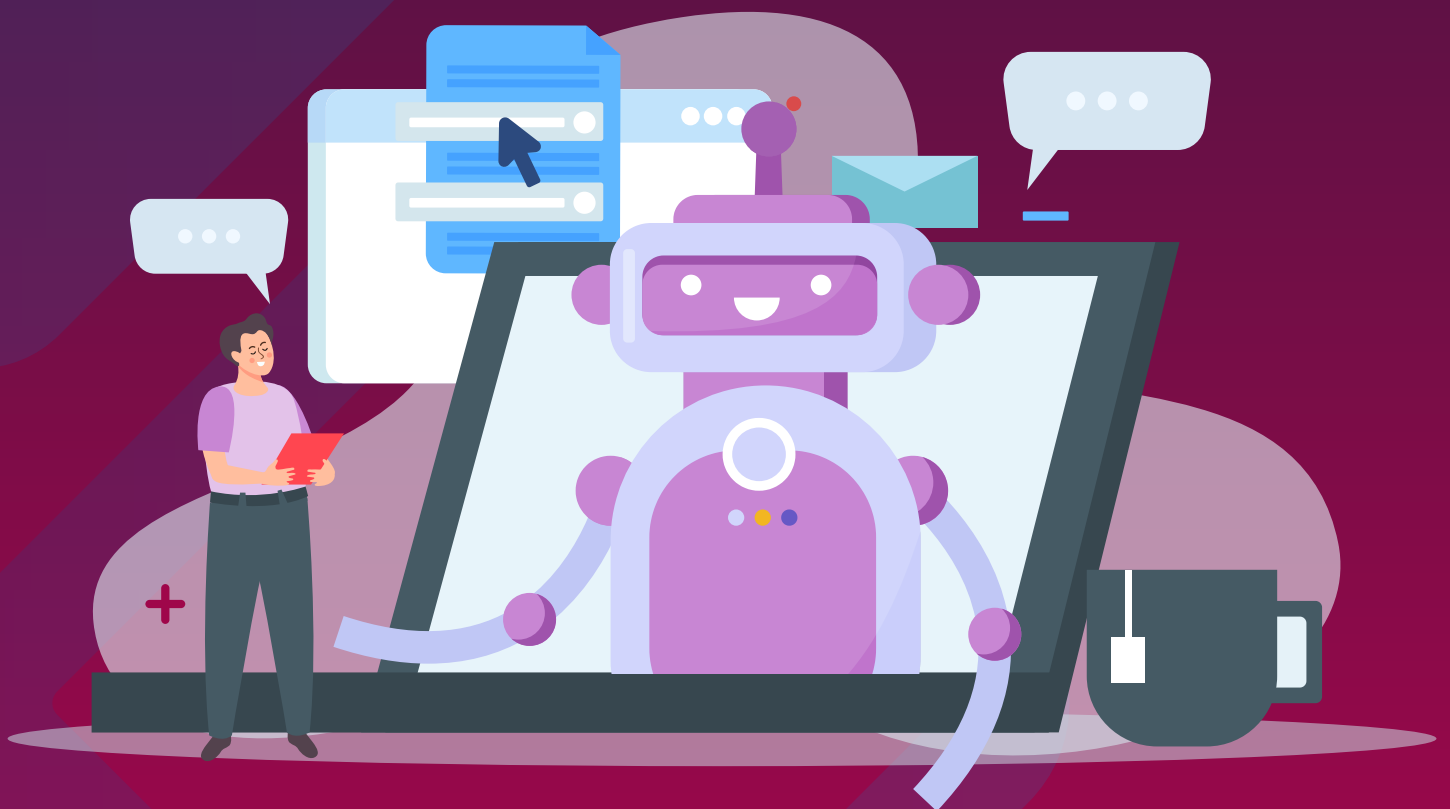
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What Is MACHINE LEARNING ?

Machine Learning Refers To A Branch Of Artificial Intelligence (AI) That Focuses On The Development And Application Of Algorithms And Models That Enable Computers To Automatically Learn And Improve From Experience Without Being Explicitly Programmed. It Involves Training Computers To Recognize Patterns And Make Predictions Or Decisions Based On Data, Rather Than Relying On Explicit Instructions. Machine Learning Algorithms Enable System To Learn From And Adapt To New Data, Allowing Them To Continually Refine Their Performance Over Time.



Course Structure

- ➔ **3 Months Course**
- ➔ **3 Months Internship**
- ➔ **100% Placement Assistance**

Machine Learning Syllabus

➔ **INTRODUCTION TO DATA SCIENCE & AI**

1. Introduction to machine learning concepts and applications
2. Supervised, unsupervised, and reinforcement learning
3. Python and popular libraries for machine learning (NumPy, Pandas, scikit-learn)

➔ **DATA PRE-PROCESSING AND EXPLORATORY DATA ANALYSIS**

1. Handling missing data and outliers
2. Feature scaling and normalization
3. Data visualization and exploratory data analysis

SUPERVISED LEARNING ALGORITHMS

1. Linear regression
2. Logistic regression
3. Decision trees and random forests

SUPERVISED LEARNING ALGORITHMS (CONTD.)

1. Support vector machines (SVM)
2. Naive Bayes classifiers
3. Evaluation metrics for classification and regression models

UNSUPERVISED LEARNING ALGORITHMS

1. K-means clustering
2. Hierarchical clustering
3. Principal Component Analysis (PCA)

NEURAL NETWORKS AND DEEP LEARNING

1. Introduction to artificial neural networks (ANN)
2. Feedforward neural networks
3. Training neural networks using backpropagation

CONVOLUTIONAL NEURAL NETWORKS (CNN)

1. Convolutional layers and filters
2. Pooling layers and stride

➡ RECURRENT NEURAL NETWORKS (RNN) AND NATURAL LANGUAGE PROCESSING (NLP)

1. Applications of RNN in NLP (text generation, sentiment analysis)

➡ MODEL EVALUATION AND HYPER-PARAMETER TUNING

1. Cross-validation techniques
2. Hyper-parameter optimization
3. Bias-variance trade-off

➡ PROJECT WORK AND WRAP-UP

1. Work on a machine learning project
(e.g., classification, regression, or NLP task)
2. Project presentations and discussion



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