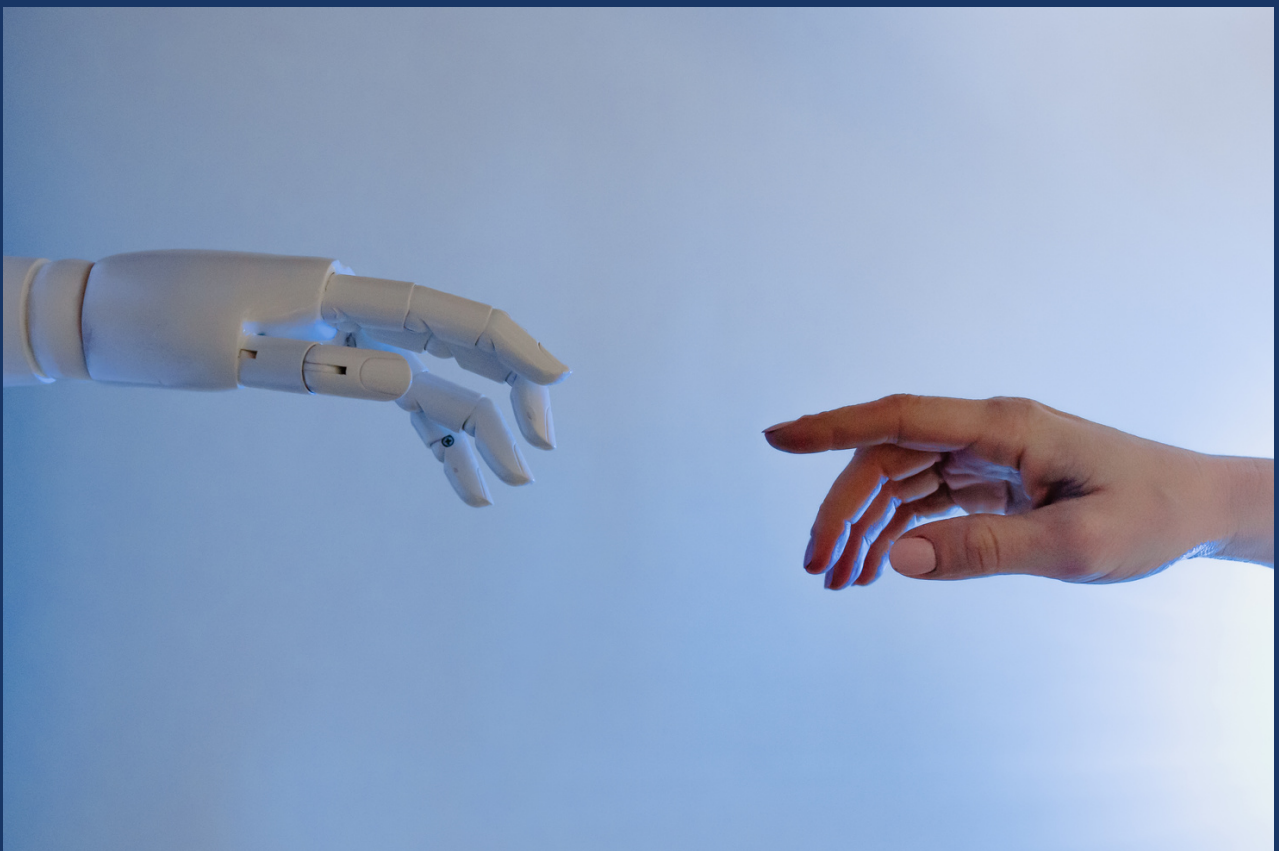


ARTIFICIAL INTELLIGENCE & MACHINE LEARNING LIVE TRAINING

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ABOUT ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

What is Artificial Intelligence (AI)?

Artificial Intelligence, often abbreviated as AI, refers to the development of computer systems that can perform tasks that typically require human intelligence. These tasks include things like learning from experience, understanding natural language, recognizing patterns, and making decisions. AI systems are designed to mimic human cognitive functions such as reasoning, problem-solving, and learning from data.

Key Concepts of AI:

- 1. Machine Learning:** A subset of AI that focuses on enabling computers to learn from data and improve their performance over time. It involves training algorithms to recognize patterns in data and make predictions or decisions.
- 2. Neural Networks:** These are models inspired by the human brain's structure and function. They're used in tasks like image and speech recognition, and they learn to identify complex patterns by processing large amounts of data.
- 3. Natural Language Processing (NLP):** NLP enables computers to understand, interpret, and generate human language. It's used in chatbots, language translation, sentiment analysis, and more.
- 4. Computer Vision:** This area involves giving computers the ability to interpret and understand visual information from the world, such as images and videos. It's used in facial recognition, object detection, and autonomous vehicles.
- 5. Robotics:** AI-powered robots can perform tasks autonomously or with human guidance. They are designed to interact with their environment and make decisions based on their sensors and programming.
- 6. Expert Systems:** These are AI programs that mimic the decision-making abilities of a human expert in a particular field. They're used to solve complex problems and provide recommendations.
- 7. Ethics in AI:** As AI becomes more prevalent, ethical considerations about how it's used and the potential biases in AI systems have become important topics of discussion.

Examples of AI in Everyday Life:

- **Virtual Assistants:** Siri, Google Assistant, and Alexa are AI-powered virtual assistants that can answer questions, set reminders, and perform various tasks.
- **Recommendation Systems:** Services like Netflix and Spotify use AI to suggest movies, shows, and music based on your preferences and viewing history.
- **Autonomous Vehicles:** Self-driving cars use AI to navigate and make real-time decisions to ensure safe and efficient travel.
- **Online Shopping:** AI algorithms analyze your browsing and purchase history to recommend products you might be interested in.
- **Medical Diagnostics:** AI can assist doctors in diagnosing diseases by analyzing medical images and identifying anomalies.

AI is a rapidly evolving field with immense potential to transform various industries and improve our daily lives. It's essential for us to understand its capabilities and limitations as we navigate an increasingly AI-driven world.

COURSE CURRICULUM

Understanding Artificial Intelligence & ML

- What is Machine Learning
- Machine with vision
- Machine Goal
- World of Gradient Descent
- Derivative of a Function
- Linear Regression algorithm
- Working with machines
- Natural Language
- Learning Complex Games
- Artificial Intelligence
- How do machine builds the logic?

Using Tensorflow

- What do we need for Machine Learning?
- Building Hello World in Tensorflow
- Understanding Computational Graph
- Computational Graph for Linear Regression
- Data Normalization
- Housing Predictor on Google Colab
- Hello World in TensorFlow
- Housing Price Predictor

Simplify ML using Keras

- Understanding role of Keras in Tensorflow
- keras vs tensorflow's lower level APIs
- Building Linear Regression model in keras
- Predict Housing Prices using ML Model
- Regression vs Classification
- Math in Classification
- Using Softmax in Classification
- Loss and accuracy in Classification
- Hand-written digits Predictor with DL
- Mini batching in ML
- Mini-batching for MNIST Dataset
- Improving ML model-hyperparameters

Deep Learning

- Problem with Linear Algorithm
- How to capture complex logic
- What is Deep Learning
- MNIST Classification with Deep Learning
- Using tensorboard visualizing ML model
- Using TensorBoard
- Activation functions in Deep Learning
- Learning rate decay
- Dropout for overfitting
- Optimizers momentum and nestrove momentum
- Adam,Adagrad Optimizers
- Hyper parameters in deep learning
- Applying ReLU, ADAM and Dropout
- Convolution Neural network (CNN) and Pooling

COURSE CURRICULUM

Getting started with Natural Language Processing

- Handling Text Data (Cleaning and Pre-processing)
- Use Spacy, Rasa and Regex for exploring and processing text data
- Information Extraction and Retrieval from text-based data
- Understand Language Modelling
- Learn Advanced Feature Engineering techniques
- Build NLP models for Text Classification
- Understand Topic modelling
- Work on Industry Relevant Projects

NLP using Deep Learning

- Understand the concept of Sequence-to-Sequence Modeling
- Build a Deep Learning Model for Language translation in PyTorch
- Learn to use Transformers library by Huggingface
- Use Transformers to perform transfer learning in NLP
- Build and Deploy your own chatbot
- Learn to work with audio-based data
- Build a voice assistant system using Deep Learning

Computer Vision using PyTorch

- Get familiar with the world of Computer Vision
- Transfer Learning for Computer Vision
- Work with popular Deep Learning Framework – Pytorch
- Learn State-of-the-art Algorithms like YOLO, SSD, RCNN and more
- Work on different types of problems
- Build Face Detection and Pose Detection Models
- Advanced CV Problems like Image Segmentation and Image Generation
- Understand how GANs work

Advanced Machine Learning

- Explore the Advanced ML concepts and Algorithms
- Use Ensemble Learning Techniques (Stacking and Blending)
- Understand and Implement Bagging and Boosting Algorithms
- Learn to handle Text data and Image Data
- Working with structured and unstructured data
- Dealing with unsupervised learning problems
- Clustering Algorithms including k-means and Hierarchical clustering

Deploying ML/DL Models

- Overview and aspects of Model Deployment
- Deploying Machine Learning models using Streamlit
- Introduction to Amazon Web services
- Deploying and Machine Learning Deep Learning models using AWS
- Understanding Amazon Sagemaker
- Model Deployment using Sagemaker
- APIs for Model deployment

SKILLS AND CONCEPTS COVERED

Understanding AI and ML Concepts:

Students will grasp the fundamental concepts of AI and ML, including the difference between the two.

Machine Learning Basics:

They will understand the distinction between supervised and unsupervised learning and how data is used in training models.

Linear Regression:

Students will learn the basics of linear regression as a simple machine learning algorithm.

Data Analysis:

Through the hands-on activity, they'll get a glimpse of data analysis and how models are trained using real data.

Presentation Skills:

The final project presentation will enhance their ability to communicate their findings effectively.

DELIVERABLES

- 200+ HRS OF LIVE LEARNING
- ASSIGNMENTS AND PRACTICE TESTS
- 1-1 MENTORSHIP
- LIVE PROJECT
- RECORDED SESSIONS AFTER CLASS



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Duration

3 months - 4 hrs - 24 sessions

Fee

Rs. 55,000/-

Training Options

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