



Deep Learning (6 Hours)

"Learn the Brain of AI – ANN, CNN & RNN with Hands-On Practice"

Workshop Modules:

Session 1 – Introduction to Deep Learning & ANN (1 Hour)

- What is Deep Learning? How it's different from traditional ML
- ANN architecture: Input, hidden, output layers
- Activation functions: ReLU, Sigmoid, Softmax
- Loss functions and optimizers
- Hands-on: Build a basic ANN for student marks or salary prediction

Session 2 – Training ANN Model (1 Hour)

- Epochs, batch size, accuracy vs loss
- Model evaluation and validation
- Overfitting & underfitting concepts
- Hands-on: Train and test ANN on Fashion MNIST dataset
- Visualize training/validation loss and accuracy

Session 3 – Introduction to CNN (1 Hour)

- Why CNNs are better for image data
- CNN layers: Convolution, Pooling, Flatten, Dense
- Understanding filters and feature extraction
- Hands-on: Build a CNN model on MNIST dataset for digit recognition

Session 4 – CNN Architecture & Practice (1 Hour)

- Recap of CNN components with examples
- Step-by-step model creation in Keras
- Training and testing with Fashion MNIST dataset
- Hands-on: Experiment with different layers, filters, and epochs
- Visualize training performance

Session 5 – Introduction to RNN (1 Hour)

- What is sequence data? Why RNNs?
- RNN architecture & working (basic only)
- Real-world use cases: sentiment analysis, time-series
- Hands-on: Build a basic RNN for text sentiment using IMDB dataset

Session 6 – Wrap-up + Roadmap & Career Guidance (1 Hour)

- Real-world use cases of ANN, CNN, and RNN
- Demo projects and ideas to explore
- Deep learning roadmap (ANN → CNN → RNN → LSTM → Transformers)
- Tips: Portfolio, resume, GitHub, LinkedIn
- Q&A + Feedback + Certificate distribution

Key Takeaways:

- Build & train models using Keras with TensorFlow
- Visualize model training performance
- Understand how ANN, CNN, and RNN solve real-world problems
- Kickstart your career in AI and Deep Learning