INFOSOFT IT SOLUTIONS

Training | Projects | Placements

Revathi Apartments, Ameerpet, 1st Floor, Opposite Annapurna Block,

Infosoft It solutions, Software Training & Development Institute, 9059683947|9182540872

Deep Learning with Python

Introduction to Deep Learning

- Overview of Deep Learning: History, applications, and significance
- Neural Networks Basics: Neurons, layers, activation functions
- Deep Learning vs. Machine Learning: Key differences and use cases

Python Fundamentals for Deep Learning

- Introduction to Python for Data Science: Basics of Python programming
- Essential Libraries: NumPy, Pandas for data manipulation
- Data Visualization: Matplotlib, Seaborn for plotting data

Introduction to TensorFlow and Keras

- Overview of TensorFlow: TensorFlow vs. other frameworks
- Introduction to Keras: Keras API for building deep learning models
- Installing TensorFlow and Keras: Setting up the development environment

Building and Training Neural Networks

- Building Blocks of Neural Networks: Layers, activation functions, loss functions

- Sequential and Functional API: Creating models in Keras
- Training Neural Networks: Compiling models, specifying optimizer and loss, fitting data

Convolutional Neural Networks (CNNs)

- Introduction to CNNs: Architecture and applications in image recognition
- Convolutional Layers: Filters, strides, padding
- Pooling Layers: Max pooling, average pooling

Recurrent Neural Networks (RNNs)

- Introduction to RNNs: Understanding sequential data processing
- LSTM (Long Short-Term Memory) Networks: Architecture and applications
- GRU (Gated Recurrent Unit) Networks: Simplified RNN variant

Advanced Deep Learning Architectures

- Transfer Learning: Using pre-trained models (e.g., VGG, ResNet)
- Autoencoders: Unsupervised learning for dimensionality reduction
- Generative Adversarial Networks (GANs): Generating new data samples

Natural Language Processing (NLP) with Deep Learning

- Word Embeddings: Word2Vec, GloVe embeddings
- Sequence-to-Sequence Models: Encoder-Decoder architectures
- Attention Mechanism: Improving performance in NLP tasks

Advanced Topics in Deep Learning

- Hyperparameter Tuning: Grid search, random search, Bayesian optimization
- Regularization Techniques: Dropout, batch normalization
- Handling Imbalanced Data: Techniques for dealing with skewed datasets

Deep Learning for Computer Vision

- Object Detection: YOLO (You Only Look Once), SSD (Single Shot MultiBox Detector)
- Image Segmentation: Semantic and instance segmentation
- Image Generation and Style Transfer: Generating artistic images

Deep Learning Deployment and Production

- Model Deployment: Converting models to deployment formats (TensorFlow Serving, TensorFlow Lite)
- Model Interpretability: Techniques for understanding model predictions
- Scaling Deep Learning Models: Distributed training, GPU acceleration

Ethics and Responsible AI in Deep Learning

- Bias and Fairness: Addressing biases in data and models
- Explainable AI: Interpreting black-box models
- AI Ethics Guidelines and Regulations

Deep Learning Projects and Case Studies

- Real-world Deep Learning Projects: Implementation and evaluation
- Case Studies: Industry-specific applications (e.g., healthcare, finance)
- Presentation and Documentation of Deep Learning Projects