INFOSOFT IT SOLUTIONS

Training | Projects | Placements

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Ai & Deep Learning

Introduction to Artificial Intelligence

- Definition and brief history of AI
- AI applications across industries
- Types of AI: Narrow vs. General AI

Machine Learning Basics

- Overview of Machine Learning (ML)
- Types of ML algorithms: Supervised, Unsupervised, Reinforcement Learning
- Feature engineering and data preprocessing

Deep Learning Fundamentals

- Introduction to Deep Learning (DL)
- Neural networks: Perceptron, Multi-layer Perceptron (MLP)
- Activation functions and loss functions

Neural Networks

- Basics of Artificial Neural Networks (ANN)
- Convolutional Neural Networks (CNN) for image processing
- Recurrent Neural Networks (RNN) for sequence data

Training Neural Networks

- Backpropagation algorithm
- Optimizers: SGD, Adam, RMSprop
- Overfitting and regularization techniques (dropout, batch normalization)

Advanced Deep Learning Architectures

- Transfer Learning and fine-tuning pre-trained models
- Autoencoders for unsupervised learning
- Generative Adversarial Networks (GANs) for generating new data

Natural Language Processing (NLP)

- Basics of NLP and its applications
- Word embeddings: Word2Vec, GloVe
- Recurrent Neural Networks (RNN) and LSTM for text data

Computer Vision

- Introduction to Computer Vision tasks
- Image classification and object detection
- Deep Learning frameworks for CV: TensorFlow, PyTorch

Ethical and Social Implications of AI

- Bias and fairness in AI algorithms
- Privacy concerns and data security
- AI regulation and responsible AI practices

AI in Practice

- Case studies of AI applications in healthcare, finance, autonomous vehicles, etc.
- Industry trends and future directions in AI research and development

Hands-on Projects

- Implementing supervised and unsupervised learning algorithms
- Building neural networks for image classification and NLP tasks
- Working with real-world datasets and evaluating model performance

Tools and Libraries

- Overview of popular Deep Learning frameworks: TensorFlow, PyTorch, Keras
- Hands-on experience with Jupyter Notebooks or Google Colab

Deployment and Scalability

- Deploying Deep Learning models in production environments
- Scalability considerations and cloud deployment options

AI Development Lifecycle

- Planning and defining AI projects
- Iterative development, testing, and validation
- Monitoring and maintenance of AI system

Career Path

- Career opportunities in AI: Data Scientist, Machine Learning Engineer, AI Researcher