Training Course:
Foundations of Artificial Intelligence: An Introduction to AI Concepts

23 - 27 December 2024
Venice (Italy)

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Training Course code: IT235086 From: 23 - 27 December 2024 Venue: Venice (Italy) - Training Course Fees: 5775 Euro

Introduction

Artificial Intelligence AI has emerged as a transformative technology, revolutionizing various industries and shaping the way we interact with the world. As AI becomes increasingly integrated into our lives, it is crucial for individuals and professionals to grasp the foundational concepts of this field. This training program, "Foundations of Artificial Intelligence: An Introduction to AI Concepts," aims to provide participants with a comprehensive understanding of AI principles, techniques, and applications.

Target Audience

The training program is designed for individuals and professionals with a basic understanding of programming and a keen interest in artificial intelligence. It is suitable for:

1. Students and Graduates: Computer science, engineering, and science students looking to explore AI and its potential career opportunities.
2. Software Developers: Professionals seeking to transition or expand their skills into AI development and applications.
3. Data Scientists and Analysts: Individuals looking to integrate AI techniques into their data analysis and prediction tasks.
4. Decision-makers and Business Leaders: Managers and executives aiming to understand AI applications and implications to make informed decisions.
5. Enthusiasts: Anyone with a curiosity about AI and its impact on society, irrespective of their technical background.

Objectives

By the end of this training program, participants will be able to:

1. Define Artificial Intelligence and comprehend its various subfields and applications.
2. Understand the different categories of Machine Learning and their use cases.
3. Implement common Machine Learning algorithms and evaluate model performance.
4. Grasp the fundamentals of Deep Learning and build Neural Networks for image and text analysis.
5. Explore Natural Language Processing techniques and apply them to real-world NLP problems.
6. Comprehend the principles of Reinforcement Learning and develop simple AI agents.
7. Analyze AI ethics and bias, and apply responsible AI practices in their projects.
8. Discuss advanced AI topics like Generative Adversarial Networks GANs and Transfer Learning.
9. Evaluate AI's impact on society, ethics, and its role in shaping the future of various industries.

Training program outline

Day 1: Introduction to AI and Machine Learning

- Overview of Artificial Intelligence and its subfields
- History and evolution of AI
- Types of Machine Learning: supervised, unsupervised, and reinforcement learning
- Common machine learning algorithms: Decision Trees, Random Forests, SVM, KN

Day 2: Deep Learning and Neural Networks

Introduction to Neural Networks and Deep Learning

- Feedforward Neural Networks and Backpropagation
- Activation functions and regularization techniques
- Convolutional Neural Networks CNNs for computer vision tasks
- Recurrent Neural Networks RNNs for sequential data analysis

Day 3: Natural Language Processing NLP

Fundamentals of NLP and its Applications

- Text preprocessing techniques: tokenization, stemming, and lemmatization
- Word embeddings: Word2Vec and GloVe
- Sequence-to-Sequence models for machine translation
- Sentiment analysis using NLP techniques

Day 4: Advanced AI Topics

Reinforcement Learning: Markov Decision Processes MDPs and Q-Learning

- Deep Q Networks DQNs and policy gradients
- Generative Adversarial Networks GANs for data generation
- Transfer learning and fine-tuning pre-trained models

Day 5: AI Ethics and the Future of AI

Ethical Considerations in AI Development and Deployment

- Bias in AI systems and strategies for mitigating it
- AI safety and explainability
- AI's impact on the job market and workforce
- Emerging trends in AI research and applications

Registration form on the Training Course:
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