London TDM

Artificial Intelligence and Data Science Training Courses

Course Venue: United Kingdom - London

Course Date: From 28 June 2026 To 02 July 2026

Course Place: London Paddington

Course Fees: 7,500 USD

Introduction

This five-day course provides an in-depth exploration of Reinforcement Learning (RL) and Adaptive Systems, designed for professionals and enthusiasts seeking to enhance their understanding and practical skills in this rapidly advancing field. Participants will cultivate a solid foundation in key RL concepts, algorithms, and applications, empowering them to design and implement adaptive systems that can learn from and respond to dynamic environments.

- Understand the fundamental principles of reinforcement learning and adaptive systems.
- Explore various RL algorithms and their practical applications.
- Develop skills to implement and test RL models using popular tools and frameworks.
- Analyze and evaluate the performance of adaptive systems in real-world scenarios.
- Design and develop adaptive solutions to complex decision-making problems.

Course Outlines

Day 1: Fundamentals of Reinforcement Learning

- Introduction to Reinforcement Learning principles and terminologies.
- Understanding the agent-environment interaction.
- Differentiating between supervised, unsupervised, and reinforcement learning.
- Exploring Markov Decision Processes (MDP).
- Hands-on exercises: Setting up a basic RL environment.

Day 2: Core Algorithms in Reinforcement Learning

- Overview of key RL algorithms: Q-Learning, SARSA, and DDPG.
- Deep dive into Policy Gradient methods.
- Understanding the exploration-exploitation trade-off.
- Implementing core algorithms using Python and TensorFlow.
- Case study: Applying RL in game development.

Day 3: Advanced Topics and Adaptive Systems

- Exploring advanced topics: Multi-Armed Bandits and Bayesian RL.
- Introduction to adaptive systems and their applications.
- Integrating RL with adaptive control strategies.
- Building adaptive behaviors with neural networks.
- Workshop: Developing adaptive agents for robotics.

Day 4: Tools and Frameworks for Reinforcement Learning

- Survey of popular RL libraries: OpenAI Gym, Keras-RL, etc.
- Setting up and using the OpenAI Gym environment.
- Working with simulation and visualization tools.
- Tuning hyperparameters for optimal performance.
- Project: Creating a custom simulation environment.

Day 5: Evaluating and Deploying Adaptive Systems

- Methods for evaluating the performance of RL systems.
- Understanding the challenges of real-world deployment.
- Ethical considerations in adaptive systems.
- Strategies for scaling adaptive solutions.
- Capstone project: Building and deploying an RL-based adaptive system.