

Orchestrating Multi-Agent AI Ecosystems

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Course Number: GAI-3103

Duration: 2 days

Overview

Course Description

Navigate the complexities of multi-agent systems and production deployment of agentic AI applications. This advanced course covers multi-agent coordination, adaptive learning systems, enterprise deployment strategies, and security considerations for production environments. Participants will learn to orchestrate teams of agents, implement learning and adaptation mechanisms, and deploy robust agentic systems that can scale in enterprise environments.

Skills Gained

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

- Design and implement multi-agent systems with effective coordination mechanisms.
- Integrate learning and adaptation capabilities into agentic AI systems.
- Deploy agentic AI applications to production environments with enterprise-grade reliability.

- Monitor, maintain, and scale agentic AI applications in real-world environments.
- Apply governance and compliance frameworks to agentic AI deployments.

Who Can Benefit

- Software Developers
- Data Scientists
- AI/ML Engineers

Prerequisites

- Single-agent development experience (GAI-3101 or equivalent)
- Practical Python programming experience
- Experience developing complex software systems

Software

All attendees must have a modern web browser and an Internet connection.

Audience

Course Details

Introduction to Multi-Agent AI Ecosystems

- Course Overview
- Why Multi-Agent Systems?
- Technical Setup
- Learning Approach and Collaboration
- Technical Stack and APIs

Understanding Multi-Agent Systems

- What is a Multi-Agent System?
- Core Characteristics
- Advantages and Challenges
- Communication Protocols and Semantics
- Coordination Models

Learning and Adaptation

- The Importance of Learning
- Learning Mechanisms
- Feedback and Self-Learning

- Adaptation in Agents
- Transfer Learning and Adaptation

Designing and Deploying Agentic Applications

- Design Principles
- Architecture Strategies
- Transitioning to Production
- Containerization and Orchestration
- Monitoring and Event-Driven Architecture

Safety and Security

- Cyber Threat Landscape
- Ensuring Safe Operations
- Robustness and Guardrails
- Governance Frameworks
- Risk Management and Business Continuity