AI Agent Training

Duration: **7 Day**

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Overview

AI Agent Training focuses on designing, developing, and deploying**AI agents** powered by **Large Language Models (LLMs)** that can plan tasks, interact with external tools, and automate specific business processes.

The course covers essential agent capabilities, including **Tool Calling**, **planning and execution loops**, **memory architectures**, and **agent orchestration**. Participants explore architectural approaches ranging from **single-agent workflows** to coordinated **multi-agent systems**.

Beyond agent development, the program examines how these systems can be integrated into enterprise environments securely and sustainably. Key topics include **Prompt Engineering**, **RAG integration**, **function calling**, **data management**, **security**, **KVKK/GDPR compliance considerations**, **CI/CD**, **monitoring**, and **observability**.

Participants gain the technical and architectural knowledge needed to develop solutions for enterprise use cases such as **intelligent operations assistants**, **self-service support bots**, and **data analysis agents**.

Prerequisites

There are **no mandatory prerequisites** for attending this training.

Who Should Attend

- **Data Scientists**
- **Machine Learning (ML) and LLM Engineers**
- **Software Developers** and **Platform Engineers**
- **DevOps** and **Site Reliability Engineering (SRE)** professionals
- Industry specialists working in **cybersecurity, finance, healthcare, and retail**
- **Technology Consultants** and **Entrepreneurs**
- **Product Managers** and **Project Managers**

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What You Will Learn

Upon completing this training, you will be able to:

- Explain how **LLM-powered AI Agents** work and identify their core components.
- Design agent architectures using **Planner, Executor, and Critic** components.
- Connect agents to external tools through **Tool Calling** and **Function Calling**.
- Build task-oriented workflows using **Prompt Engineering** and **Task Modeling**.
- Manage agent knowledge through **short-term and long-term memory** structures.
- Incorporate relevant and up-to-date information using **RAG integration**.
- Evaluate **Single-Agent** and **Multi-Agent** architectures for different use cases.
- Design scalable automation systems using **Dynamic Planning** and multi-agent coordination.
- Consider **Prompt Injection** defenses, **PII Masking**, and data protection requirements.
- Relate **CI/CD, Monitoring, and Observability** practices to agent deployment.
- Evaluate architectural choices that affect **API and token costs**.
- Apply agent development approaches to **support bots, operations assistants, and data analysis agents**.

Outline

1. Introduction to AI Agents and Core Concepts

Course Scope and Objectives

- Overview of the program structure, modules, and schedule
- Participant profiles and prerequisite considerations
- Learning objectives, **success indicators**, and evaluation criteria

Understanding AI Agents and Their Evolution

- Definition and motivation behind **AI Agents**
- Evolution from **rule-based systems** to data-driven and **LLM-powered agents**
- Development of approaches such as **AutoGPT**, **BabyAGI**, **CrewAI**, and **OpenAI Function Calling**
- The role of **Tool Use** in extending agent capabilities

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Agent Ecosystem and Fundamental Components

- **Planner** component
- **Executor** component
- **Critic** component
- **Short-term, long-term, episodic, and semantic memory**
- **Toolbox** structure and tool utilization
- **Action–Observation** loops
- **Single-agent and multi-agent** systems
- **Synchronous and asynchronous orchestration**

2. Architectural Design and System Components

This section examines the architectural structure of **AI Agent systems** and the interaction between their components.

- Fundamental components of **agent architectures**
- Interaction between **Planner, Executor, and Critic**
- **Single-Agent** system design
- **Multi-Agent** coordination
- **Dynamic planning** and task execution
- **Scalable agent architectures** for enterprise applications

3. Task Modeling and Prompt Engineering

- Principles of **Task Modeling**
- Transforming user requests into executable agent tasks
- The role of **Prompt Engineering** in agent behavior
- Structuring **planning–execution loops**
- **LLM-powered workflows** supported by external tools
- Evaluating task outcomes

4. Memory and Data Management

- **AI Agent memory architectures**
- **Short-Term Memory**

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- **Long-Term Memory**
- **Episodic Memory**
- **Semantic Memory**
- **Retrieval-Augmented Generation (RAG)** integration
- Incorporating current data into agent workflows
- **Data management** and information retrieval

5. Tool Integration and Toolbox Management

- **Tool Calling** and **Function Calling**
- Connecting agents with external tools and services
- Organizing the agent **Toolbox**
- Using tools through the **Action–Observation** loop
- **Tool-Augmented LLM** approaches
- Evaluating API and token usage costs

6. Multi-Agent Systems and Enterprise Workflows

Advanced topics identified in the course overview include:

- **Multi-Agent Coordination**
- Task distribution and collaboration between agents
- Workflow execution through **Dynamic Planning**
- **Scalability** for increasing user and task demands
- Enterprise automation scenarios
- **Intelligent Operations Assistants**, **Support Bots**, and **Data Analysis Agents**

7. Security, Compliance, and Production Deployment

Topics reflected in the course overview and learning outcomes include:

- Defensive approaches against **Prompt Injection**
- **Personally Identifiable Information (PII) Masking**
- The impact of **KVKK** and **GDPR** requirements on architectural design
- **Security and auditability** of agent systems

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- **CI/CD** practices
- **Monitoring** and **Observability**
- **Production Deployment**
- Agent lifecycle and operational management