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Sign up

AutoGen Training: Agentic AI

4 days (28 hours)

Overview

Our training course introduces you to AutoGen Agentic AI, a cutting-edge technology that creates autonomous multi-agent systems capable of collaborating, learning and executing complex tasks without constant supervision.

The result of the convergence of intelligent agents and LLMs, this approach is revolutionizing the orchestration of data workflows. This AutoGen Agentic AI training course provides you with the skills to design, orchestrate and deploy robust multi-agent architectures, integrated with your Data pipelines.

You'll learn how to use AutoGen Studio, integrate external tools and supervise agentic workflows from end to end, with a focus on governance and reliability.

At the end of the course, you'll be able to industrialize ethical, high-performance agentic systems, while guaranteeing security and compliance.

Like all our training courses, this one is based on the latest stable version of AutoGen.

Objectives

- Design multi-agent workflows with AutoGen
- Integrate AutoGen into Data/IT pipelines
- Deploy robust, supervised agents in production
- Mastering agentic design patterns
- Apply security, governance and ethics

Target audience

- Data analysts

- Data scientists
- AI architects

Prerequisites

- Good basic knowledge of Python
- Familiarity with LLMs
- Knowledge of cloud infrastructures

Our AutoGen Agentic AI training program

[Day 1 - Morning]

Introduction to the AutoGen ecosystem and Agentic AI

- Agentic AI fundamentals: autonomy, orchestration, collaboration
- Distinction between generative AI and agentic AI
- Agent roles and typologies in a Data environment
- Architecture and components of the AutoGen framework
- Overview of enterprise use cases
- Practical workshop: Installing AutoGen and creating a first agent.

[Day 1 - Afternoon]

Basic principles of intelligent agents

- Notions of autonomous agents: perception, decision, action
- Proactive vs. reactive agents
- Multi-agent communication and cooperation
- Orchestration protocols and control loops
- Introduction to the separation of roles and responsibilities
- Practical workshop: csv data analysis agent in Python.

Getting started with AutoGen Studio

- Discovering AutoGen Studio (low-code interface)
- Debugging and simulating agent interactions
- Visualization of exchanges and execution states
- Connecting to external LLMs
- Best practices for rapid startup and iteration
- Practical workshop: Getting to grips with AutoGen Studio.

[Day 2 - Morning]

Designing multi-agent workflows

- Definition of agentic workflows and responsibilities
- Design patterns: reflection, planning, tools
- Role management: assistant/specialized agents
- Optimizing agent-agent exchanges
- Limits and constraints of complex scenarios
- Practical workshop: Collaborative mini-workflow.

[Day 2 - Afternoon]

Integration into Data pipelines

- Connecting to databases and APIs
- ETL / Data Lake integration and artifact management
- Processing chains and observability
- Scalability and performance management
- Execution supervision and key metrics
- Practical workshop: Multi-agent data management and processing.

Agent security and governance

- Permission and access control
- Traceability: logs, audits, activity logs
- Human supervision and guardrails
- Data governance and compliance
- Operational risk management
- Practical workshop: Roles, authorizations and human supervision.

[Day 3 - Morning]

Advanced orchestration with AutoGen

- Event-driven architecture and asynchronous agents
- Communication via queues/messages and speaker selection
- Conflict resolution strategies
- Distributed execution and robustness
- State observability and controlled restart
- Practical workshop: Orchestrating a distributed workflow.

[Day 3 - Afternoon]

Extending AutoGen with external tools

- Python tools and extensions (LLM clients, code execution, etc.)
- Docker integration, gRPC, webhooks
- Connection to third-party services (search, storage, RAG)
- Monitoring via plugins and logs
- Industrialization of specialized agents
- Practical workshop: Adding an external tool to an AutoGen agent.

Testing, debugging and optimization

- Test strategies (unit, scenario, non-regression)
- Debugging in AutoGen Studio
- Latency and cost optimization
- Failure management and recovery
- Dedicated CI/CD chains
- Practical workshop: Workflow testing & tuning.

[Day 4 - Morning]

Industrial and business use cases

- Finance, healthcare, marketing, operations scenarios
- Use in DataOps/MLOps
- Interoperability with LangChain, Swarm, etc.
- Benchmarks and performance criteria
- Feedback and pitfalls to avoid
- Practical workshop: Prototyping an AutoGen business use-case.

[Day 4 - Afternoon]

Deployment and production launch

- Deployment strategies (environments, secrets, artifacts)
- Cloud Azure/AWS/GCP & Docker/Kubernetes containerization
- High availability and scalability
- Production supervision (Prometheus, Grafana)
- Runbooks and SLO/SLA
- Practical workshop: Deploying an agentic workflow in prod.

Ethics and the future of agentic AI

- Responsibility and compliance (legal frameworks)
- Human supervision and alignment
- Risks (security, bias, drift) and mitigation
- Business impacts & changing roles Data
- AutoGen roadmap and agentic trends
- Practical workshop: Designing an operational ethical framework.

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire enabling us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the forthcoming course, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical training: 60% hands-on, 40% theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire is used to check that skills have been correctly acquired.

Certification

A certificate will be awarded to each trainee who completes the training course.