Agentic AI

- 5 Days
- Lecture and Hands-on Labs

Course Overview

This course teaches participants how to design, build, and deploy autonomous agentic AI systems for customer interactions. Through hands-on labs and a capstone project, students will learn to use LLMs, RAG, memory, and APIs to create AI agents that can reason, act, and plan. The course also covers deployment, ethical concerns, and real-world applications in support, sales, and service environments.

Review this course online at https://www.alta3.com/courses/ai-agents

Who Should Attend

- Application Developers
- Data Scientists
- Project Managers
- System Engineers
- Technology Trainers

What You'll Learn

- Concept #1
- Concept #2
- Concept #3
- Concept #4
- Concept #5
- Concept #6

Outline

Day One: Foundations of Agentic AI 1. Introduction to Agentic AI - Definition and core chrematistics - Autonomy, reasoning, action-oriented - Evolution from generative AI to Agentic AI

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- Key use cases in customer-facing roles (i.e. support, sales, engagement)
- Interactive Q&amp;amp;A: What makes AI "Agentic"
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2. Technology Stack Overview
    - Large Language Models (LLMs) for reasoning and communication
    - Retrieval-Augmented Generation (RAG) for real-time access
    - APIs and integrations for action-taking
    - Memory and context management systems
    - Demo: Compare a generative chatbot vs. an agentic AI workflow
3. Customer Interaction Scenarios
    - Proactive vs. reactive AI: Examples in e-commerce, healthcare, and finance
    - Mapping customer journeys to agentic AI capabilities
    - Group Activity: Brainstorm a customer interaction problem agentic AI could solve

4. Setting the Stage
    - Tools and platforms

i. LangChain, Hugging Face, API frameworks, etc.
    - Course project intro: Build an agentic AI customer assistant
    - Hands-on Lab: Set up development environment (Python, API's, LLM access) Day Two: Technical Foundation and Building Blocks

5. LLMs and Reasoning
    - How LLMs power natural language understanding and generation
    - Prompt engineering for goal-oriented tasks
    - Hands-on Lab: Create a basic LLM-powered Q&A system
6. Adding Context with RAG
    - What is Retrieval-Augmented Generation?
    - Connecting LLMs to external data sources
    - Hands-On Lab: Build a RAG system to fetch real-time order status
7. Action Capabilities
    - Integrating APIs for task execution
    - Designing multi-step workflows
    - Hands-on Lab: Add an API call to reschedule a mock delivery
8. Wrap-up and Project Work
    - Combining Day 2 skills into a mini-agent
    - Group Discussion: Challenges in autonomy and decision making
    - Project Time: Begin Coding the customer assistant (i.e. order support agent

Day Three: Designing Autonomous Agents 9. Autonomy and Planning - How agentic AI breaks down goals into actionable steps - Algorithms for planning (i.e. tree search reinforcement learning basics - Demo: An agent resolving a multi-step customer query 10. Memory and Context Management - Short-term vs. long-term memory in AI Agents - Maintaining conversation context across interactions - Hands-on Lab: Add memory to your agent for follow-up questions 11. Scaling Agentic AI - Handling high volumes of customer interactions - Load balancing and performance optimization - Case Study: A real-world deployment 12. Project Development - Refine the customer assistant: Add planning and memory features - Peer Review: Share progress and Troubleshoot Day 4: Business Applications and Deployment 13. Business Use Cases - Customer support: Ticketing, refunds, escalations - Sales: Upselling, personalized recommendations - Proactive care: Anticipating customer needs - Group Activity: Design an agentic AI for a specific industry 14. Integration with Business Systems - Connecting to CRMs (e.g., Salesforce), ERPs, and messaging platforms - Security and data privacy considerations - Hands-On: Simulate integration with a mock CRM 15. Deployment Strategies - Cloud vs. on-premise deployment - Monitoring and maintaining AI agents - Demo: Deploy a sample agent to a cloud platform 16. Project Refinement - Finalize the customer assistant: Test multi-step workflows - Prepare for Day 5 presentations Day 5: Ethics, Evaluation, and Capstone 17. Ethics and Governance - Bias and fairness in autonomous decision-making - Transparency: Letting customers know they're interacting with AI

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- Guardrails and human oversight
- Discussion: Ethical dilemmas in customer-facing AI
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18. Evaluating Agentic AI
    - Metrics: Accuracy, customer satisfaction, task completion rate
    - Testing for edge cases and failure modes
    - Hands-On: Test your agent with simulated customer scenarios
19. Capstone Project Presentations
    - Teams present their customer assistants (e.g., demo + explanation)
    - Feedback from peers and instructors
20. Wrap-Up and Next Steps
    - Recap of key learnings
    - Resources for further study (e.g., frameworks, research papers)

- Q&A and course feedback

Prerequisites

- Basic understanding of AI, familiarity with Python, and exposure to generative AI concepts (e.g., LLMs)