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Azure AI training

3 days (21 hours)

Presentation

Master Azure AI to design, deploy and monitor robust artificial intelligence solutions. This training course guides you step-by-step through the implementation of ready-to-use AI models: language, vision, voice, bots, exploiting the full potential of Azure's cognitive services and OpenAI models.

You'll learn how to analyze text, images, video or voice, use generative NLP models (GPT), build intelligent conversational agents, and orchestrate these building blocks in secure, high-performance cloud architectures.

You'll be able to create your own templates with Custom Vision or LUIS, generate summaries or responses with Azure OpenAI, transcribe and translate voice streams in real time, and develop dynamic chatbots connected to intelligent knowledge bases.

You'll address issues of security, supervision, AI governance and scaling, with a concrete focus on integration via API, deployment on Azure App Services, and automation in a DevOps logic.

As with all our training courses, it will take place on my latest version of the tool: Azure IA.

Objectives

- Understanding Azure AI service architecture
- Design, train and deploy customized language processing models
- Implement conversational applications with Azure Bot Framework, Composer, QnA Maker and Azure OpenAI templates
- Supervise, secure and govern AI solutions by configuring authentication
- Automate the deployment, configuration and monitoring of AI services via CLI, containers, Azure DevOps and Infrastructure as Code.

- Understand the issues of ethics, algorithmic bias and compliance in a responsible and auditable AI design approach.

Target audience

- Developers
- Data Scientists
- Architects
- System administrators

Prerequisites

- Basic knowledge of REST APIs
- Knowledge of a modern development language (Java, Python, Scala)

Azure AI training program

Introduction to Artificial Intelligence on Azure

- Overview of Azure AI services
- Types of solutions: pre-built vs. customized
- Roles and responsibilities of an AI Engineer
- Difference between AI, ML, Deep Learning and Cognitive Services
- Data types (text, image, audio, video, etc.)
- Ethics and responsible AI

Configuring and deploying Cognitive Services

- Creating a Cognitive Services resource on Azure
- Authentication via API keys and endpoints
- Using the SDK and REST API

Language processing with Azure AI Language

- Sentiment analysis, entity extraction, named entity recognition
- Text translation with Translator
- Conversation analysis with Language Studio

Image analysis with Computer Vision

- Object and face detection
- Image description and OCR

- Image tagging and moderation

Video processing with Video Indexer

- Automatic video indexing (scene and voice recognition, etc.)
- Metadata extraction for intelligent search
- Using video insights in applications

Speech recognition with Azure Speech

- Speech-to-text transcription
- Speech synthesis (Text-to-Speech)
- Multilingual voice translation

Implement natural language processing solutions

- Introduction to Azure OpenAI GPT templates
- Creating effective NLP prompts
- Use cases: text summarization, answer generation, classification
- Creation of language comprehension applications
- Entities, intentions, training and testing
- Integration with bots
- Creating a knowledge base from documents or FAQs
- Training, publishing and querying the knowledge base
- Integration into applications or bots

Implementing computer vision solutions

- Creating and training a customized model
- Single and multi-label image classification
- Model export for edge devices
- Face detection, identification and grouping
- Customize user groups
- Ethical considerations and RGPD
- Creating an image analysis interface
- Results storage and processing
- Operation in an analysis workflow

Implement voice intelligence solutions

- Recognition template configuration
- Training for specific vocabularies
- Real-time vs. batch results
- Choice of standard or neural voices
- Voice customization with Custom Neural Voice
- Integration with voice assistants

- Setting source and target languages
- Multilingual flow management
- Real-time multilingual applications

Developing conversational bots with Azure Bot Service

- Azure Bot Framework SDK
- Integration with Channels (Teams, Web Chat, etc.)
- Adaptive dialog and reusable components
- Dialog, trigger and action creation
- Integration with LUIS or Azure QnA Maker
- Debugging, simulation and deployment
- Using Azure Bot Service and App Service
- Logs, diagnostics and performance analysis
- Secure conversations and data

Security and governance

- Authentication with Azure Active Directory
- Key, endpoint, quota and firewall management
- Bias detection and model auditability

Supervision and monitoring

- Integration with Application Insights
- Custom metrics collection
- Alerts on service quality or availability

Cost optimization and performance

- Choosing the right pricing levels
- Using containers for local deployment
- Scaling strategies

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 enrolment 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 objectives.

This questionnaire also enables us to anticipate any connection or internal security problems (intra-company or virtual classroom) that could be problematic for the follow-up and smooth running of the training session. This questionnaire also enables us to anticipate any connection or internal security difficulties (intra-company or virtual classroom) that could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 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 verifies the correct acquisition of skills.

Sanction

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