

Azure Cognitive Services, OpenAI and Prompt Engineering

2 Days / Instructor-Led / Format: On-Site or Virtual

Contact Us for Pricing

Course Outline:

Introduction to AI

- What is AI?
- Microsoft AI
- How neural networks work
- Backpropagation

Cognitive Services

- Introduction
- Authentication
- Calling Cognitive Services APIs
- Computer Vision Service
- Language Service
 - Analyzing Sentiment
 - Q/A
- Translator Service
- Speech Service
- Multivariate anomaly detector
- Custom Vision Service

Introduction to OpenAI

- What is OpenAI?
- What is Azure OpenAI?
 - Azure Open AI Service Models
- Azure Open AI Studio
 - Chat Playground
 - Completions Playground
- Chat GPT
 - How it works
 - Generating text
 - Editing text

- Translating text
- Analyzing Sentiment
- Answering [Contextual] Questions
- Code generation

Embeddings and Azure Cognitive Search

- Tokenization
 - Keras Tokenizer
 - Byte Pair Encoding
- What are embeddings?
- Embeddings API
- Azure Cognitive Search?
 - Architecture
 - Indexers
 - Skillsets
 - Defining an index schema
 - Vector search
- Lab
 - Using OpenAI's Embeddings API to vectorize text samples
 - Tutorial: Index JSON blobs from Azure Storage using REST:
 - <https://learn.microsoft.com/en-us/azure/search/search-semi-structured-data>
 - Quickstart: Use preview REST APIs for vector search queries:
 - <https://learn.microsoft.com/en-us/azure/search/search-get-started-vector>

LangChain and Vector Database

- Document Loaders
 - Components
 - Chains
- Document loaders
- Text Splitters
- OpenAIEmbeddings
- Vector Store/Database
 - Chromadb
 - Azure Cognitive Search
- Retrieval techniques
- Lab:
 - LangChain over documents using chromadb

Prompt Engineering

- What is Prompt Engineering?
- GPT Fundamentals
 - Roles
 - Components
- Techniques
 - Role prompting
 - Instruction prompting
 - Few-shot learning
 - Chain of thought prompting
 - Grounding context
 - Token usage
 - Best practices
- Structured Output
- Prompt hacking