

TRUENORTH GROUP

Visualize | Analyze | Monetize

DATA-DRIVEN
GROWTH

truenorthgroup.co.za

Azure OpenAI Masterclass

Immerse yourself in comprehensive two-day program, led by industry experts in the field of AI, and master the use of Azure OpenAI. Dive into advanced use cases for hands-on learning.

- ✓ Gain Technical, hands-on knowledge of the Azure OpenAI platform
- ✓ Work with practical examples of how to leverage Azure OpenAI with real world problems
- ✓ Gain an understanding of how to define potential use-cases in your organization
- ✓ Learn how to integrate Azure OpenAI models into your MLOps process
- ✓ Course material and example code repositories

Azure OpenAI Mastery Course Overview

Azure OpenAI provides a series of tools and models to be used for generative AI purposes placing the latest capabilities at your fingertips. Not only can you generate new text but even images using tools such as DALL-E. Azure OpenAI also enables users to not only build new models but work from current Large Language Models (LLM's) and fine-tuning by adding business specific data to give endless opportunities for custom built solutions. The training will enable users to build their own solutions in various development options. It also covers the integration with other Data Science and Machine Learning platforms such as Azure Databricks.

This two-day program will cover everything from what is considered AI, to the use of the Azure Open AI studio to finally the execution of models in an MLOps environment. Learn about the API's made available in Azure OpenAI and the SDK's and how to use them effectively.

Elevate your AI proficiency through our dynamic training initiative.

Course objectives:

- Understand what AI is in general and what is meant by Generative AI
- Create resources in Azure needed to use Azure OpenAI effectively
- Understand the API's and the SDK's provided
- Learn where prompt engineering fits into the development process and how to build it successful
- Understand model fine-tuning
- Use Vector databases and embedding models
- Understand and use the concepts of grounding a model
- Walk through practical examples and use cases
- Walk through real-world architectures and guide for your environment

After completing this course users will be able to use Azure OpenAI for successful implementation of their own Generative AI applications.

Module 1: OpenAI and Generative AI	Understand what is meant by AI, Generative AI, Azure OpenAI and main use cases
Module 2: Azure OpenAI Studio Playground	Create an Azure OpenAI service resource and understand the Azure OpenAI base models using the Azure OpenAI Studio
Module 3: Azure OpenAI and Azure Databricks	Setup and use the integration of Azure OpenAI with Azure Databricks
Module 4: Azure OpenAI API's and SDK's	Work with Azure OpenAI REST API's and SDK's to integrate into your applications
Module 5: Prompt Engineering	How can prompt engineering be used to optimize performance of Azure OpenAI models by providing relevant prompts
Module 6: Model Fine Tuning	Learn how to prepare data for fine-tuning an Azure OpenAI model and initiate fine tuning in the Azure OpenAI Studio
Module 7: Embedding Models	Azure OpenAI theory and application of embeddings, Vector database theory and utilization, and embedding models using pandas dataframes
Module 8: OpenAI Codex	Use Azure OpenAI models to generate code from natural language prompts and existing code, ranging from one-line commands to full applications
Module 9: Azure OpenAI DALL-E	Learn to use DALL-E to generate custom images based on natural language
Module 10: Grounding OpenAI Models	Understand the concepts of grounding an Azure OpenAI model, adding your own data to deployed models using the Azure OpenAI Studio
Module 11: Pandas vs PySpark	Leverage the power of PySpark and Pandas for relevant use cases
Module 12: Azure OpenAI Practical Examples	Work through a series of practical examples
Module 13: OpenAI MLOps	Learn the integrations to current MLOps frameworks for your Azure OpenAI models
Module 14: OpenAI Advanced Use cases	Advanced practical use cases using Azure OpenAI
Module 15: Summary and Conclusion	Conclusion of training and recommendations for the future

Elevate your AI proficiency through our dynamic training initiative.

Azure OpenAI Masterclass Outline

Module 1: OpenAI and Generative AI

- History, Theory and Capabilities of OpenAI
- What is Artificial Intelligence?
- What is Generative AI?
- Collaboration of OpenAI with Microsoft.
- Where does OpenAI fit into the product offering of Azure?
- Security of OpenAI.
- Some use case examples of OpenAI.

Module 2: Azure Open AI Studio Playground

- Run through the setup and registration of the process.
- Run through the various functionalities of the platform.
- What is completion, chat, codex, DALL-E?
- Different models available on the Open AI platform.
- Model parameters to optimize performance.
- Run through practical examples of each on the OpenAI Azure Studio Playground.

Module 3: Azure OpenAI and Azure Databricks

- Setup Databricks environment.
- Provision clusters and install required packages.
- Setup connection between Databricks and OpenAI.
- Example to test functionality.

Module 4: Azure Open AI restful API's and SDK's

- OpenAI API and SDK connectors and how it can be leveraged.
- Which models allow for API and SDK integration?
- Compare Azure OpenAI studio with the Azure OpenAI Service API's and SDK's.
- Run through examples where we access API's of OpenAI models.
- Run through examples where we access SDK's of OpenAI models

Module 5: Prompt Engineering

- What is prompt engineering and where is it used?
- How to optimize prompt engineering?
- Provide clear instructions.
- Section markers.
- Primary, supporting and grounding content.
- Cues.
- Provide context.
- System message.

- Conversation history.
- Few shot learning.
- Break down complex tasks.
- Chain of thought.

Module 6: Model fine tuning

- What is model fine tuning?
- Data preparation.
- When to use fine tuning?
- How to perform model fine tuning on the Open AI portal?
- How to deploy a fine-tuned model and use it in your application?
- Go through an example using the OpenAI portal and OpenAI SDKs.

Module 7: Embedding models

- What are embeddings?
- How are embeddings used?
- What is a vector database?
- Setup of Redis vector database.
- Practical example of embedding with vector database.

Module 8: Azure OpenAI Codex

- What is code generation and which models should be used for these tasks?
- Write functions.
- Change coding language.
- Understand unknown code.
- Completion of partial code.
- Write Unit tests.
- Add comments to code and generate documents for code.
- Fix bugs and improve code.
- Improve code performance.
- Refactor inefficient code.
- Go through a few examples where we apply the applications discussed above.

Module 9: Azure OpenAI DALL-E

- What is image generation?
- Details about DALL-E
- Azure OpenAI Portal Overview.
- OpenAI DALL-E Rest API and use thereof.
- OpenAI DALL-E Python SDKs

- Running through some image processing scenarios.

Module 10: Grounding OpenAI models

- Fine tuning vs User Own data.
- Add and connect your own data.
- Chat with models using your own data via API.
- Run through scenarios with 1 or 2 files from attendees' data.

Module 11: Pandas vs Pyspark

- Pandas dataframes vs Pyspark dataframes.
- Pandas and Pyspark code for OpenAI.
- Parallel processing.
- Performance enhancements and scaling of solutions.

Module 12: Azure OpenAI Practical Examples

- Embeddings for ML models
- Document Classification
- Document Summarization
- Document Key Information Extraction
- Document Key Word Extraction
- Semantic Search
- Information Retrieval

Module 13: OpenAI MLOps

- Take OpenAI and Databricks example through the MLOps process.
- DevOps and Git repos.
- Automation.
- Scheduling.
- Execution Notifications with Logic Apps.

Module 14: OpenAI Advanced Use Cases

- Advanced use cases where we see OpenAI can play a role in your organization.
- OpenAI readiness assessment.

Module 15: Summary and Conclusion

- OpenAI course summary and next steps.

Elevate your AI proficiency through our dynamic training initiative.

TRUENORTH GROUP

Visualize | Analyze | Monetize

Thank you

MAKE
CONTACT
TODAY

CENTURION

Southdowns
Ridge Office
Park 1240 John
Vorster Drive
Centurion
South Africa

CAPE TOWN

Bridgewater One
Block 3
Energy Ln
Century City
Cape Town
7441

GEORGE

Beacon Place
125 Meadestraat
George

DATA-DRIVEN
GROWTH

truenorthgroup.co.za

info@truenorthgroup.co.za
archie.marincowitz@truenorthgroup.co.za