GenAI and RAG Application Building Workshop

ANI_305 | Expert-Led Live | Automation and Insights | Expert
Course Duration: 3 days

The workshop covers Large Language Models (LLMs) and the application of Retrieval-Augmented Generation (RAG) to make GenAI relevant to your network. You'll learn techniques to adapt or enhance GPT models—such as prompt engineering, RAG, and fine-tuning—along with popular tools and libraries, enabling you to apply these methods to solve real-world network challenges. Students will have an opportunity to build RAG based GenAI App. The workshop can also be customized with network-specific use cases, offering practical case studies tailored to different job functions.

Intended Audience

Anyone curious about large language models and interested in exploring their potential through effective prompting.

Objectives

After completing this course, the learner will be able to:

- Converse confidently using AI, ML, DL and GenAI Terminology
- Practice techniques of prompt engineering
- Apply advanced prompt engineering methodologies
- Discuss techniques to fine tune LLM capabilities
- Practice GenAI workflow automation in building network applications
- Apply hands-on techniques to build network apps using RAG

Outline

1. Introduction to GenAI and LLM
1.1 Evolution from AI, ML to GenAI
1.2 GenAI application architecture
1.3 Popular LLMs, tools and packages
1.4 Various LLM communities
Exercise: Explain LLMs and how they work

2. Interacting with LLM
2.1 Ways to customize LLM responses
2.2 Incorporating your own data
2.3 APIs for LLMs
Exercise: Basic prompts and prompt templates

3. Prompt Engineering Techniques
3.1 The magic of prompts
3.2 Prompt anatomy
3.3 Defining LLM model persona
3.4 Zero-shot prompts
3.5 Few-shot learning
3.6 Chain of Thought (CoT)
Exercise: Assign persona to the LLM
Exercise: Zero-shot prompts
Exercise: Few-shot prompts
Exercise: CoT prompts

4. Fine Tuning A Trained LLM
4.1 What is fine tuning?
4.2 When and how to fine tune?

5. GenAI Workflow Automation
5.1 What is LangChain?
5.2 Why use LangChain?
5.3 LangChain core components
5.4 Prompt pipelining using LangChain
Exercise: Build independent prompts to be chained
Exercise: Build an automation task using LangChain
Exercise: Build network operation chatbot

6. Retrieval Augmented Generation (RAG)
6.1 Why RAG matters in GenAI applications
6.2 RAG architecture
6.3 VectorDB and tokenization
6.4 Importance of search criteria
Exercise: Construct RAG components
Exercise: Build RAG based network operation tutor
Exercise: Build RAG based network troubleshooting voice assistant