



# 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 communitiesExercise: 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 LLMsExercise: 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 LangChainExercise: 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 criteriaExercise: Construct RAG components  
Exercise: Build RAG based network operation tutor  
Exercise: Build RAG based network troubleshooting voice assistant