

Introduction to Generative AI

Duration: 02 days (16 hours)

Labs: Open Source platform and Koenig DC will be provided

Pre-requisite: Fundamental knowledge of Python/similar programming is a must.

Course Content

Module 01: Introduction of GenAI

- Introduction to Generative AI & its Architecture
- Introduction to Generative Adversarial Networks (GANs)
- Applications of Generative AI using Transformer Library
- Hands-on: Basic GenAI application creation using transformer library (Hugging face)

Module 02: Working with Text Based Large language Model

- Architecture of Large Language Models
- Types of Large Language Models (LLMs)
- Hands-on: Task based Text AI LLMs - Translation, Summarization, Sentence Similarity, etc.
- Introduction to Ollama
- Hands-on: Consuming Major Text AI LLMs using Ollama (Qwen, Cohere, Falcon, LLama)
- Role based prompting of LLMs using Ollama
- Hands-on: Applying role-based prompting & Consuming LLMs using Ollama (Llama)

Module 03: Working with Image Based Large Language Models

- Image AI Models & Services
- Hands-On: Performing multiple tasks using LLMs (Object Detection, Image Segmentation, Image Retrieval, Image Captioning, Visual QnA, Zero-shot Image Classification)

Module 04: Prompt Engineering for Large Language Models

- Introduction to Prompt Engineering
- Prompt Engineering Techniques
- Text Prompting using Llama (Meta)
- Hands-on: Iterative, Summarization, Inference & Transformation Prompting using LLMs

Module 06: Fine-tuning LLMs (Quantization) using Open Source Models

- Introduction to Quantization
- Optimization of model weights (data types)
- Modes of Quantization
- Hands-on: Fine tuning Llama model

Module 07: Basic LLM Systems (RAG) using Large Language Models

- Introduction to Retrieval Augmented Generation (RAG)
- Introduction to LangChain
- Concept of Embedding, Retrieval, Chain and Agents using LangChain
- Lab: Build a Simple LLM Application using LangChain
- Lab: Build a Chatbot LangChain