Building with Generative AI

Duration – 3 days

Overview

This course offers a deep dive into Generative AI, starting with its foundations, Transformer architecture, and Hugging Face LLMs. Hands-on labs cover text generation, image processing, and speech recognition. Building on this, the course explores application development with LangChain and LlamaIndex, introducing prompt engineering, fine-tuning, chatbot creation, and RAG systems with vector stores. Finally, it delves into AI agents, covering Langraphs, AutoGen, and deploying agents on Azure. Each module progressively builds skills, from understanding AI models to creating practical applications and intelligent agents, ensuring a comprehensive grasp of Generative AI development.

Module 1: Generative AI

- Understanding background and backdrop of generative AI
- Understanding Transformer architecture
- Introduction to Hugging Face Large language models (LLM)
- Labs : Language text – Text completion , classification , translation, sentence similarity
- Labs: Text to image , image to text , question answering Image based , Object detection , image captioning
- Labs: Automatic speech recognition

Module 2: Application Development – Langchain , LlamaIndex

- Prompt engineering and techniques – zero shot , on shot and few shot
- Lab : Prompt engineering
- Fine tuning model on custom dataset
- Lab : Finetuning a base model on custom dataset
- Simple Langchain application
- Lab: Simple langchain application
- Creating a Conversational customised chatbot on LLM
- Labs : Chatbot creation
- Vector stores and retrievers
- Labs – vector store and retrievers
- Understanding Retrieval augmented generating system
- Labs: PDF RAG
- Labs: QnA RAG

Module 3: AI Agents

- Introduction to agents
- Agents on Langraphs
- Agents on Autogen
- Labs Lang graphs
- Labs on autogen
- AI Agents on cloud Azure