Gen AI Fundamentals II - Intermediate

Description
This course is designed to familiarise the attendees with the more Intermediate concepts in Gen AI. This Intermediate course Builds on the Fundamentals I Course, to provide a more Intermediate dive into GenAI concepts, industry applications, and hands-on learning.

Outline
Session 1: Deeper Generative Models Overview
Session 2: Hands-on Implementation of Generative Models **-** Autoregressive Models
Session 3: Hands-on Implementation of Generative Models **-** Variational Autoencoders (VAEs)
Session 4: Hands-on Implementation of Generative Models **-** Generative Adversarial Networks (GANs)

Prerequisite
GenAI Fundamentals I

Objectives
Using appropriate data, introduce delegates to:
- o Deeper Dive into Generative Models
- o Working with and implementing Autoregressive Models
- o Working with and implementing Variational Autoencoders (VAEs)
- o Working with and implementing Generative Adversarial Networks

Outcome
Delegates will leave the sessions with a deep understanding and capacity to create their own Generative Models

Program
Session 1:
Deeper Generative Models Overview
  I.   Understanding generative models

  II. Discriminative vs. generative models

  III. Types of generative models: autoregressive models, variational autoencoders (VAEs), generative adversarial networks (GANs), etc.

Session 2:
Hands-on Implementation of Generative Models **-** Autoregressive Models
  I.   Theory behind autoregressive models

  II. Implementing autoregressive models using libraries like TensorFlow or PyTorch

  III. Practical exercises and projects

Session 3:
Hands-on Implementation of Generative Models **-** Variational Autoencoders (VAEs)
    I.   Understanding the concept of variational autoencoders

    II.   Training VAEs for generating new samples

    III.   Hands-on coding exercises and projects

Session 4:
Hands-on Implementation of Generative Models **-** Generative Adversarial Networks (GANs)
- Introduction to GANs and their architecture

- Training GANs for image generation

- Tips for stable training and avoiding common pitfalls

- Practical projects involving GANs