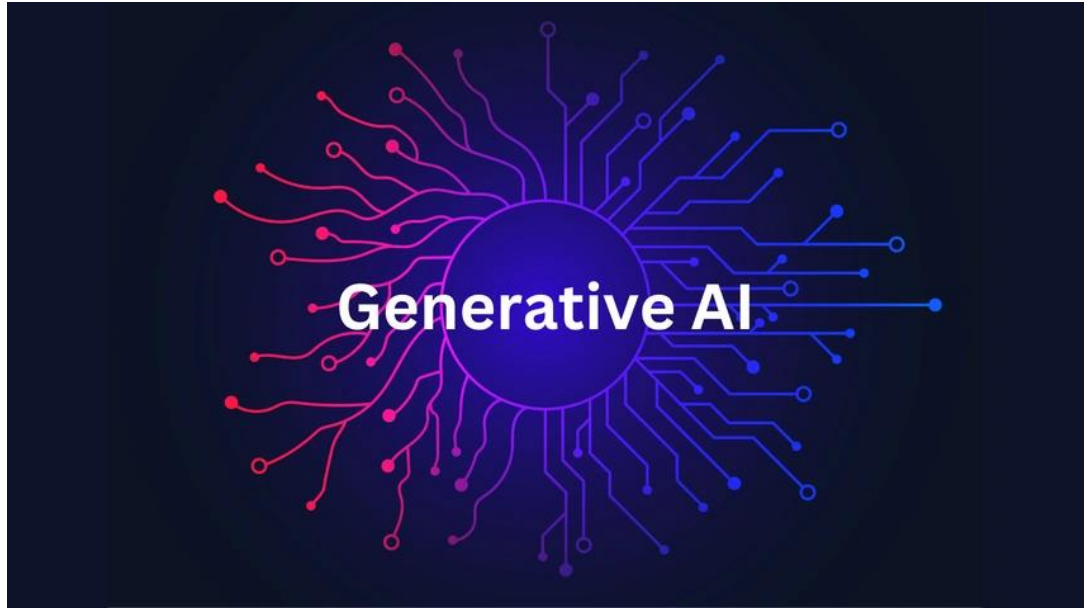




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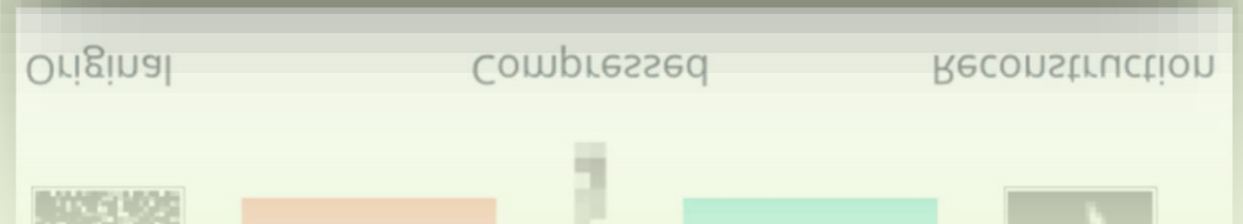
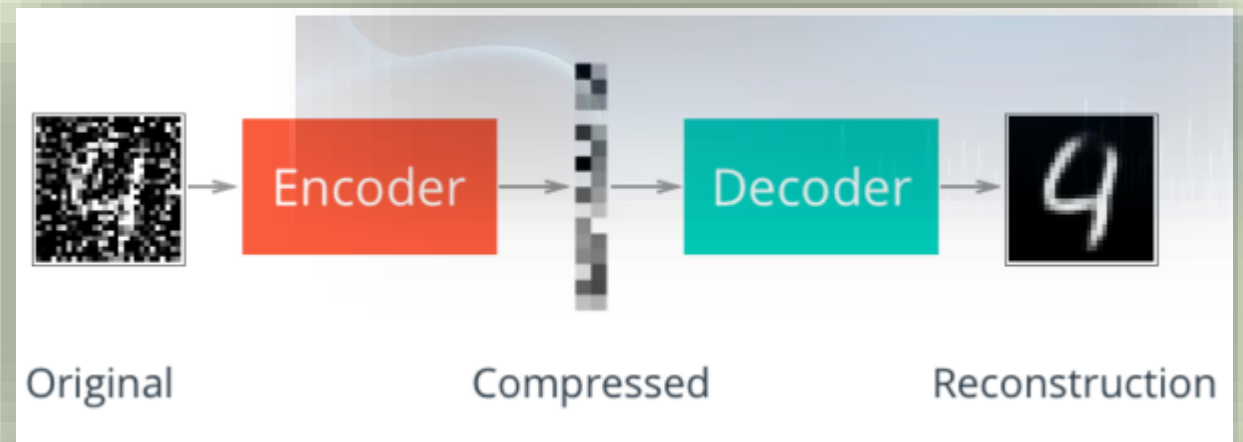


Short Course on Generative AI



Topics Covered

- ▶ **Introduction to Generative AI**
- ▶ **Transformers – Transformer Models, Encoder and Decoder stacks, Hands on session using Hugging Face**
- ▶ **Introduction to Large Language Models (LLMs) – BERT, OpenAI ChatGPT, other models**
- ▶ **Variational Auto Encoders(VAEs)**
- ▶ **Generative Adversarial Networks(GANs)**
- ▶ **Deepfakes with GANs**
- ▶ **Hands on sessions on various projects like Music Composition with Generative Models, Text Generation, Art Style Transfer, Anomaly Detection using Autoencoders and much more**



Detailed Syllabus

▶ **Module 1: An Introduction to Generative AI:**

- ▶ Applications of AI
- ▶ The rules of probability
- ▶ Why use generative models
- ▶ Style transfer and image transformation
- ▶ Unique challenges of generative models

Module 2: Understanding General Artificial Intelligence (GAI) Types –

- ▶ Distinguishing features of GANs, diffusers, and transformers
- ▶ Painting Pictures with Neural Networks Using VAEs
- ▶ Deconstructing GAI methods –
- ▶ Exploring GANs, diffusers, and transformers

Module 3: Image Generation with GANs

- ▶ Generative adversarial networks
- ▶ Vanilla GAN
- ▶ Progressive GAN
- ▶ Deepfakes with GANs

Module 4: Replacement using autoencoders

- ▶ Task definition
- ▶ Dataset preparation
- ▶ Autoencoder architecture
- ▶ Results and limitations

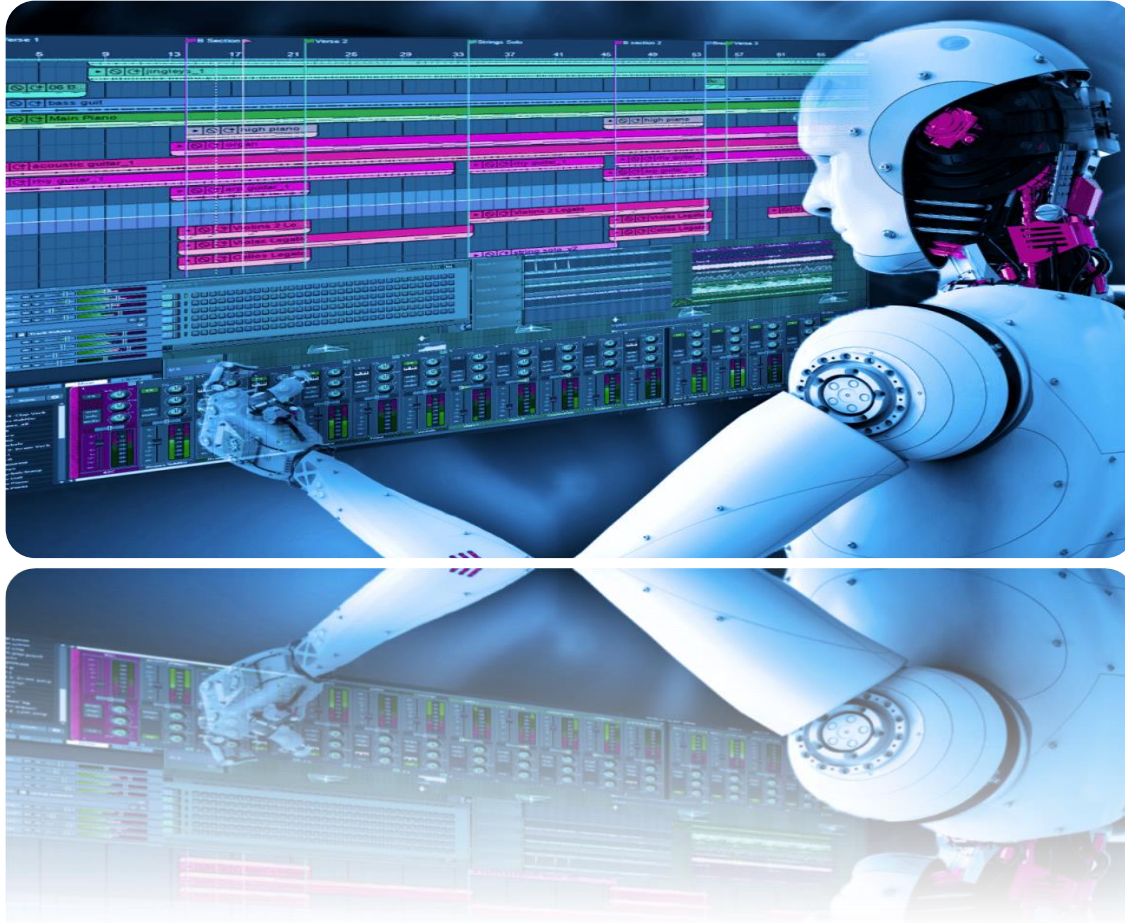
Module 5: NLP 2.0: Using Transformers to Generate Text

- Contextual embeddings
- Attention and Self Attention
- Transformers
- Overall architecture

Module 6: Composing Music with Generative Models

- Getting started with music generation
- Representing music
- Music generation using LSTMs
- LSTM model for music generation

About OppenFynn Innovation Labs



- M/S OppenFynn Innovation Labs is an start up registered as a Partnership firm , in Bangalore , Karnataka
- Promotors are from prestigious Institutions such as IISc, Bangalore, IIM-Kashipur, IIT-Roorkee
- OppenFynn Innovation Lab has a team of skilled professionals, graduated from premier institutions having vast experience in academia , research and industry and working with new age technologies such as Artificial Intelligence, Machine Learning, Deep Learning, Data Science, Financial Data Analytics, Quantum computing, Quantum Photonics. We believe in empowering youth to be future technocrats by providing state of art, world class educational e-learning services covering fundamental and practical aspects at affordable prices.



Course Outcomes

- Candidates will be able to understand the fundamental principles and techniques of generative AI, including how different models like Variational Autoencoders (VAEs), Generative Adversarial Networks (GANs), and Transformers operate..
- Gain hands-on experience with transformer models, particularly understanding their architecture (Encoder-Decoder stacks) and applications in various generative tasks.
- Candidates will demonstrate the ability to use and fine-tune large language models like BERT and OpenAI's ChatGPT, understanding their strengths and limitations in natural language generation and processing tasks.
- Candidates will acquire practical skills in implementing and applying VAEs and GANs to solve real-world problems, such as image generation, text-to-image translation, and synthetic data creation..
- Develop the ability to critically analyze and evaluate the performance of different generative models, understanding their limitations and potential for improvement..



Course Pre - Requisites

1. Students should be comfortable with linear algebra, calculus, probability, and statistics, as these are crucial for understanding the mathematical underpinnings of generative models.
2. solid understanding of programming concepts and be proficient in at least one programming language, preferably Python.
3. Familiarity with basic machine learning concepts such as supervised and unsupervised learning, regression, classification, clustering, and model evaluation.
4. Understanding of the architecture of neural networks, including concepts like layers, activation functions, backpropagation, and training techniques.

Faculty Handling this Course



Divya Shree .S B.E., MTech, (Ph.D.);
Certified AI and Deep Learning Engineering
(IIT-Roorkee):- Seven Years of Industrial
Experience

- ▶ Program Schedule: 12 Weeks, 1 class per week (3 Hrs)
- ▶ Cost: INR 14,750 inclusive of GST (Base price INR 12500 + 18% GST INR 2250)
- ▶ Offline/Online Mode can be arranged based on specific request
- ▶ Hands on session: Python/PyTorch Framework
- ▶ Terms of Payment.
 - ▶ Full amount to be paid at the beginning of the course and no partial payment will be entertained. Course will be confirmed through confirmation mail on receipt of full payment.

- ▶ Payment details

OPPENFYNN INNOVATION LABS (GSTIN: 29AAHFO2616F1ZB)

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THE TEAM



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Divya Shree.S

B.E, M.Tech, Certified AI and Deep Learning Engineer(IIT Roorkee)



Tools we cover





Placement assistance will be provided on successful completion of course

For more details regarding the course schedule, contents or any other queries

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Thank You

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