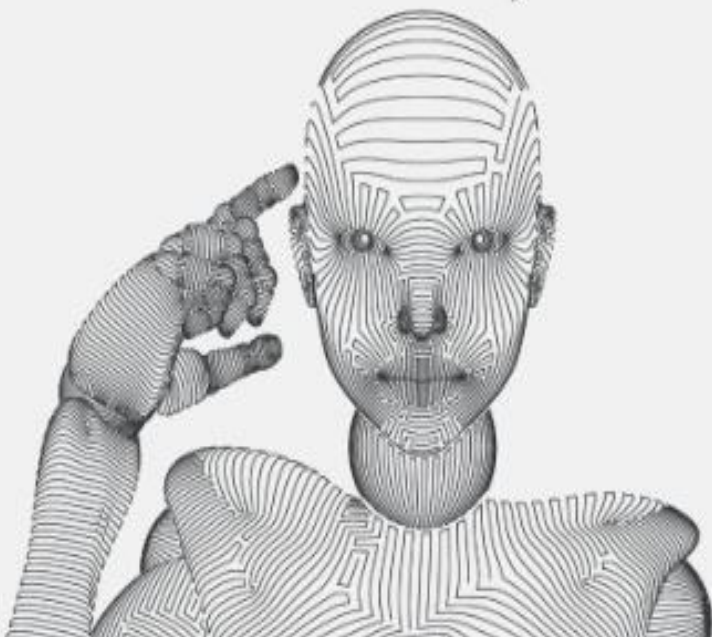# Gen AI
Zero to Expert

Roadmap

Gen AI Zero to Expert Roadmap

Phase 1: Foundation
1. AI Basics
2. Programming Skills
3. Introduction to Deep Learning

Phase 2: Intermediate Skills
1. Advanced Deep Learning
2. Generative Models
3. Natural Language Processing (NLP)

Phase 3: Advanced Topics
1. Specialized Generative Models
2. Advanced Training Techniques

Check captions for Detailed Roadmap 👇

1️⃣Phase 1: Foundation

👉Basic Knowledge of AI and ML
Understand AI Concepts: Study the basics of AI, machine learning (ML), and deep learning (DL).
Mathematics for AI: Focus on linear algebra, calculus, probability, and statistics.

👉Programming Skills
Learn Python: Master Python as it's the primary language used in AI.
Familiarity with Libraries: Get comfortable with NumPy, Pandas, Matplotlib, and Scikit-Learn.

👉Introduction to Deep Learning
Study Neural Networks: Understand the basics of neural networks, including perceptrons and activation functions.

2️⃣Phase 2: Intermediate Skills

👉Advanced Deep Learning:
Deep Learning Models: Learn about CNNs, RNNs, LSTMs, and GANs.
Model Training: Study backpropagation, gradient descent, and optimization techniques.

👉Generative Models:
Autoencoders: Understand the concept and applications of autoencoders.
Variational Autoencoders (VAEs): Study VAEs for generating new data.
Generative Adversarial Networks (GANs): Delve deep into GANs, their architecture, and training process.

👉 Natural Language Processing (NLP)
NLP Basics: Understand tokenization, stemming, lemmatization, and basic NLP tasks.
Transformers and BERT: Study transformer architecture, attention mechanisms, and pre-trained models like BERT.

3 Phase 3: Advanced Topics

👉 Specialized Generative Models
GPT (Generative Pre-trained Transformers): Learn about the architecture and training of GPT models.
Diffusion Models: Study diffusion models for image and data generation.

👉 Advanced Training Techniques
Transfer Learning: Understand transfer learning and its application in fine-tuning models.
Reinforcement Learning: Explore the basics of reinforcement learning and its intersection with generative models.