



"The ones who are crazy enough to think they can change the world, are the ones who do."

Steve Jobs

Let's Learn Generative AI

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What is Generative AI?

Generative AI is an advanced concept in the field of Artificial Intelligence and Machine Learning.

It is a type of artificial intelligence that is capable of creating something new. It's an aspect of machine learning, drawing from the principles of deep learning algorithms, and it is used to produce creative outputs such as images, text, and music.

Generative AI algorithms work by understanding the patterns and structures in the data they're trained on, and they use this understanding to generate new data that has the same characteristics. One of the most common types of generative AI models is Generative Adversarial Networks (GANs), where two neural networks (a Generator and a Discriminator) work against each other to generate new, synthetic instances of data that can pass for real data.

Other examples of generative AI technologies include Variational Autoencoders (VAEs) and Transformer models used for text generation.

Generative AI has been used in various applications such as creating realistic-looking art, synthesizing photorealistic images, generating human-like text, producing new music, and even in drug discovery and material design.

So, in order to learn Generative AI building a strong foundation in basic computing, programming (specifically Python, given its extensive use in AI/ML), mathematics, and basic

AI/ML concepts is important. These concepts are not directly related to generative AI but serve as prerequisites to grasp and implement generative AI effectively.

What are the steps to learn Generative AI?

Here are the 8 steps which you can take to learn Generative AI assuming you have a good understanding of Basic computing, programming, mathematics and basic AI/ ML Concepts.

| Step | Description |
|--------|--|
| Step 1 | Learn a Programming Language: Python is recommended due to its simplicity and powerful libraries. |
| Step 2 | Understand AI and ML Basics: Familiarize yourself with basic AI/ML concepts and why they are important. |
| Step 3 | Explore Python Libraries for AI/ML: Get hands-on with Python libraries widely used in AI/ML like NumPy, Pandas, Matplotlib, and Scikit-learn. |
| Step 4 | Learn about Neural Networks: Understand how neural networks work and what deep learning means. |
| Step 5 | Understand Generative AI: Dive into what generative AI is, its types, and uses. |
| Step 6 | Apply Knowledge to Projects: Put your learning to practice by working on small, generative AI-specific projects. |
| Step 7 | Join Online Communities: Engage with AI/ML communities online to learn more, share your work, and get feedback. |
| Step 8 | Expand and Stay Updated: As you get comfortable, start learning more complex topics and stay updated with AI/ML advancements. |

Can you share some **free learning resources** that we can utilize at each of the above step?

Step 1:

Learn Python - syntax, data types, loops, functions, object-oriented programming.

Refer : [Python.org](https://python.org) and [Codecademy's Python Course](https://www.codecademy.com/learn/python)

Step 2:

Look for beginner-level resources or courses that provide an introduction to AI and ML concepts.

Refer : [Google's Machine Learning Crash Course](https://www.coursera.org/learn/machine-learning)

Step 3:

Look for beginner-level resources or courses that provide an introduction to AI and ML concepts.

Refer : [Kaggle's Python Course](https://www.kaggle.com/learn/python) and [DataCamp's Scikit-learn Course](https://www.datacamp.com/courses/scikit-learn-tutorial)

Step 4:

Start with the basics of neural networks and deep learning, progressing from simpler to more complex concepts.

Refer : [Coursera's Deep Learning Specialization](https://www.coursera.org/specializations/deep-learning)

Step 5:

Learn about generative models like Variational Autoencoders (VAEs) and Generative Adversarial Networks (GANs).

Refer : [Deep Learning Book - Ian Goodfellow](https://www.deeplearningbook.org/)

Step 6:

Start with simple tasks such as generating texts or creating simple images, then move to more complex projects.

Refer : [GitHub - Generative Models](#) and [Kaggle Datasets](#)

Step 7:

Follow AI/ML threads on Reddit, GitHub, or StackOverflow. Join discussions, ask questions, and share your projects.

Refer : [Machine Learning Subreddit](#) and [Data Science StackExchange](#)

Step 8:

Stay curious. Follow AI blogs, news portals, attend webinars/seminars, read recent research papers, and continually adapt your learning.

Refer : [arXiv.org](#) and [Google AI Blog](#)

There is more....

Generative AI Learning Path from Google

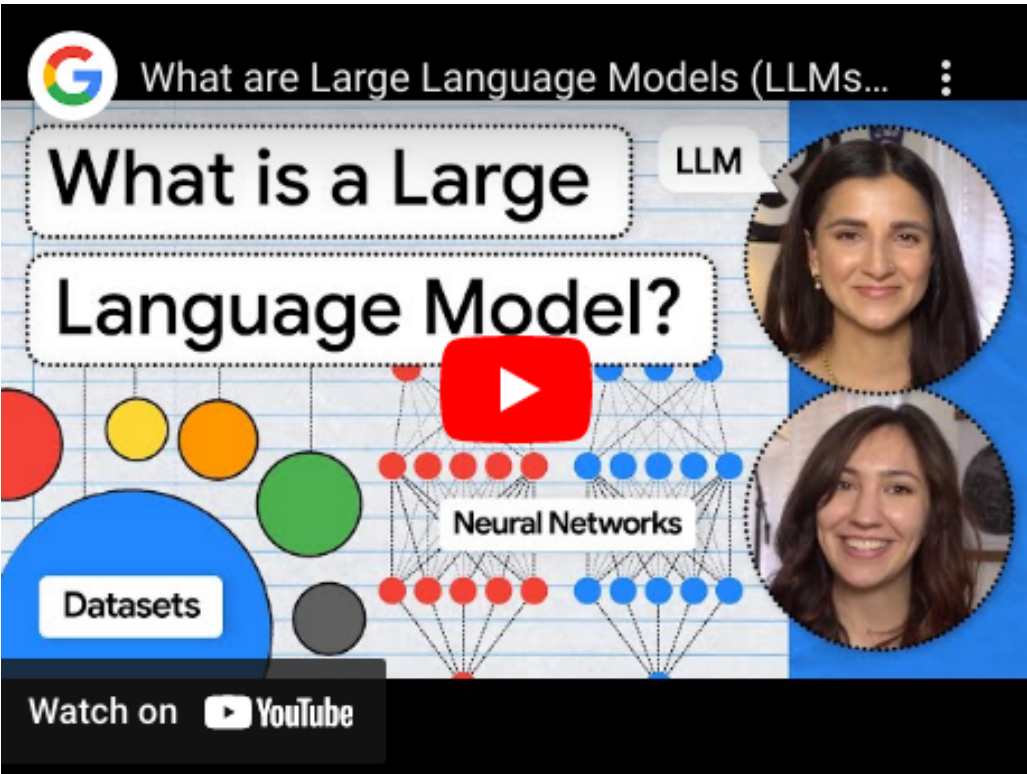
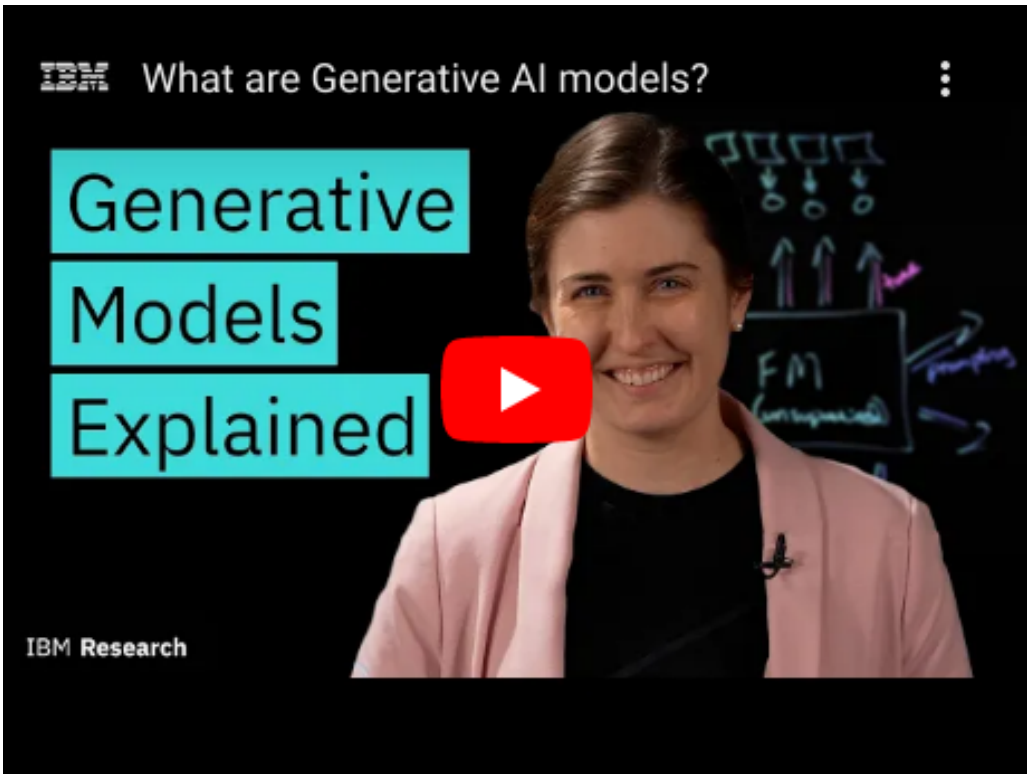
This learning path guides you through a curated collection of content on Generative AI products and technologies, from the fundamentals of Large Language Models to how to create and deploy generative AI solutions on Google Cloud.

It includes:

1. Introduction to Generative AI
2. Introduction to Large Language Models
3. Introduction to Responsible AI
4. Introduction to Image Generation
5. Encoder-Decoder Architecture
6. Attention Mechanism
7. Transformer Models and BERT Model
8. Create Image Captioning Models
9. Introduction to Generative AI Studio
10. Generative AI Explorer - Vertex AI

Grab it here for free : [Generative AI learning.path](#) (Note learning is free, labs are not free)

More Learning Resources:



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