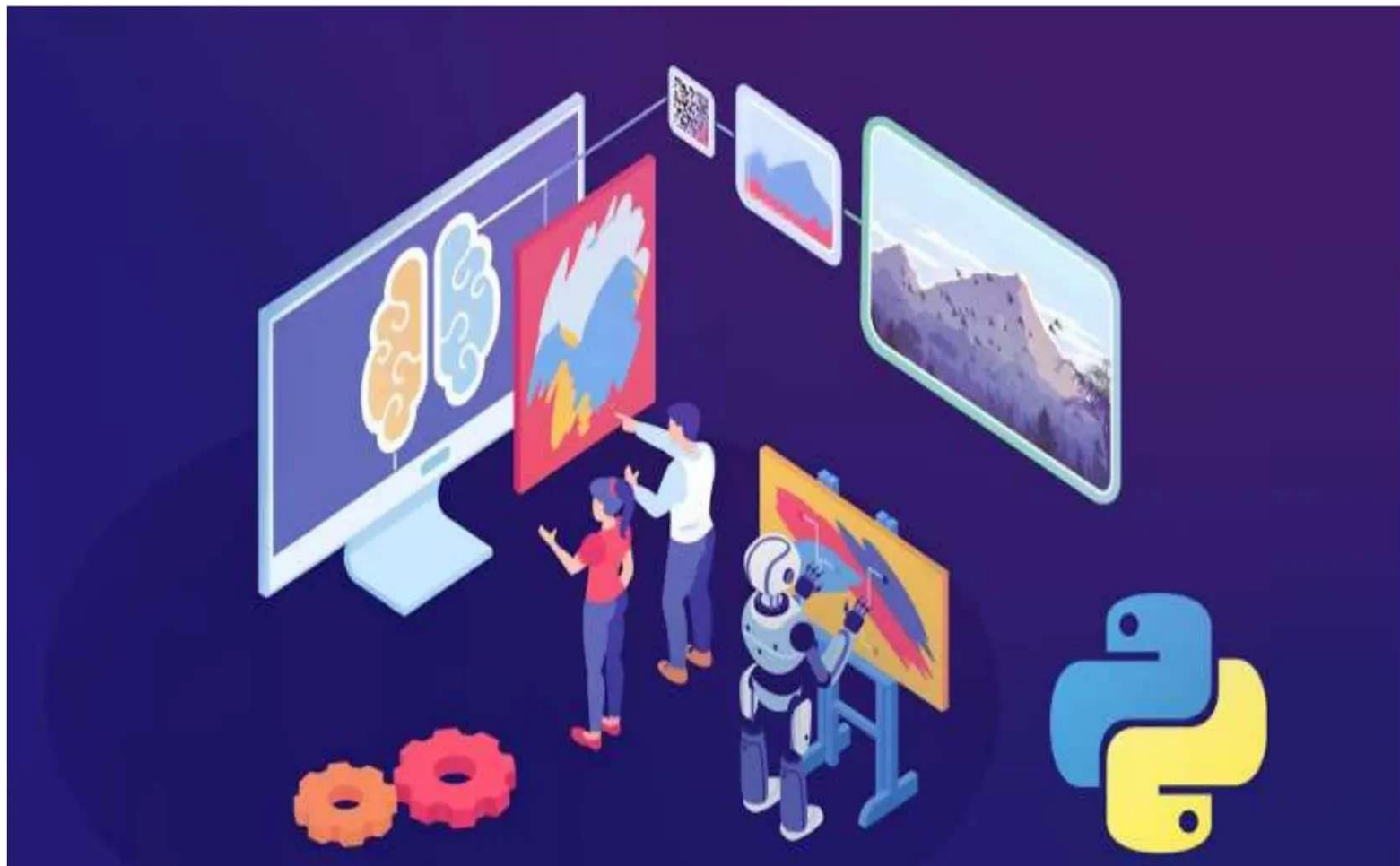




# GENERATIVE ADVERSARIAL NETWORKS (GANS):



# WHAT ARE GANs?

- GANs - **Generative Adversarial Networks**
- Introduced by Ian Goodfellow and other researchers from the University of Montreal in 2014
- It is a neural network that belongs to the set of **generative AI**
- They are capable of generating new content that has never been generated before
- GANS fall under the category of Unsupervised Learning
- It can be applied to various domains such as images, music, speech, and writing
- The architecture consists of two neural networks: the **Generator** and the **Discriminator**

# THE EVOLUTION OF GANs

- It was a major breakthrough in the field of Deep Learning and Artificial Neural Networks.
- Since its publication, it has remained one of the most popular and relevant topics within the field of Artificial Intelligence and Deep Learning.
- It caused a significant advancement as until then other technologies were not achieving satisfactory results.
- GANs came as a revolution, being the first to produce high-quality results on most of the datasets they were trained on.

# CONVOLUTIONAL NEURAL NETWORK (CNN)

- To understand GANs first we must have little understanding of Convolutional Neural Networks.
- CNNs are trained to classify images with respect to their labels if an image is fed to a CNN, it analyzes the image pixel by pixel and is passed through nodes present in CNN's hidden layers and as an output, it tells what the image is about or what it sees in the image.
- For example: If a CNN is trained to classify dogs and cats and an image is fed to this CNN, it can tell whether there is a dog or a cat in that image. Therefore it can also be called as a classification algorithm

# HOW GANs WORK

## Generator

generate new  
instances of data



## Discriminator

evaluates the authenticity  
of the generated data



Images of the  
Training set

