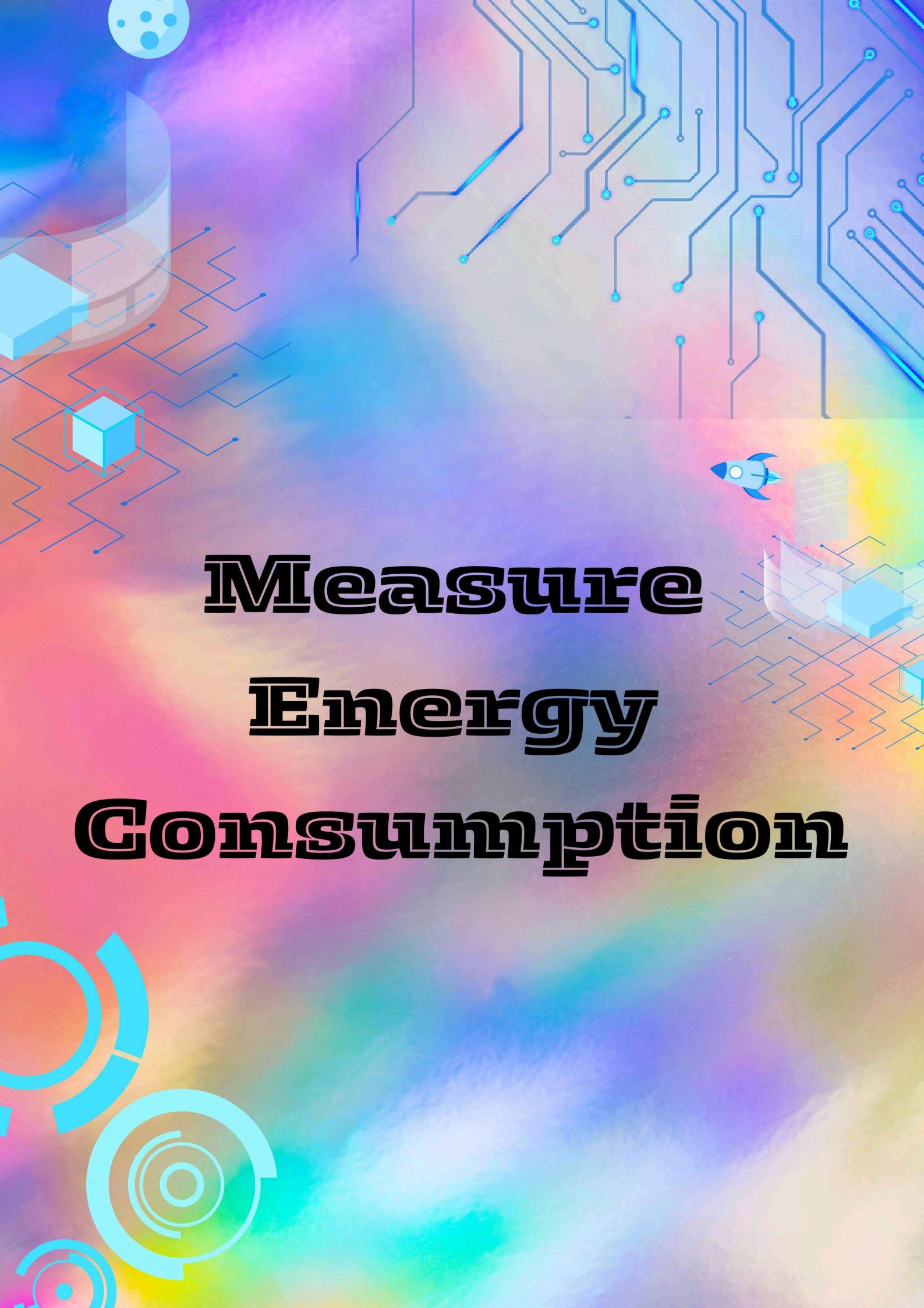
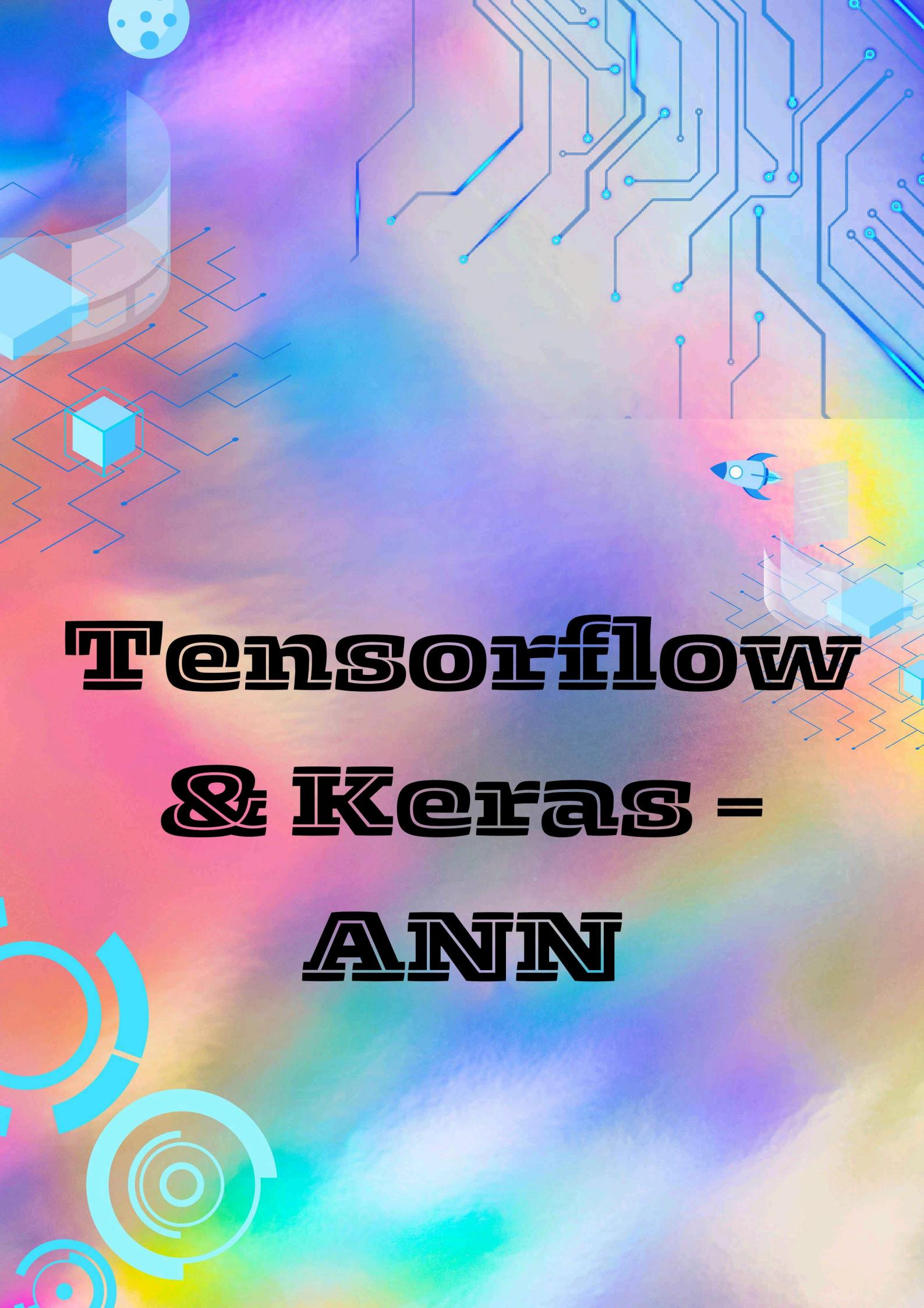


WELCOME





Measure Energy Consumption



A vibrant, abstract background featuring a gradient from blue to red. It includes a large, stylized circuit board pattern in the upper right, a small blue rocket ship launching from a white base in the center-right, and several glowing, translucent shapes like spheres and cubes in the lower left.

Tensorflow

& Keras =

ANN

Tensorflow and Keras are two popular libraries for building and training artificial neural networks (ANNs).

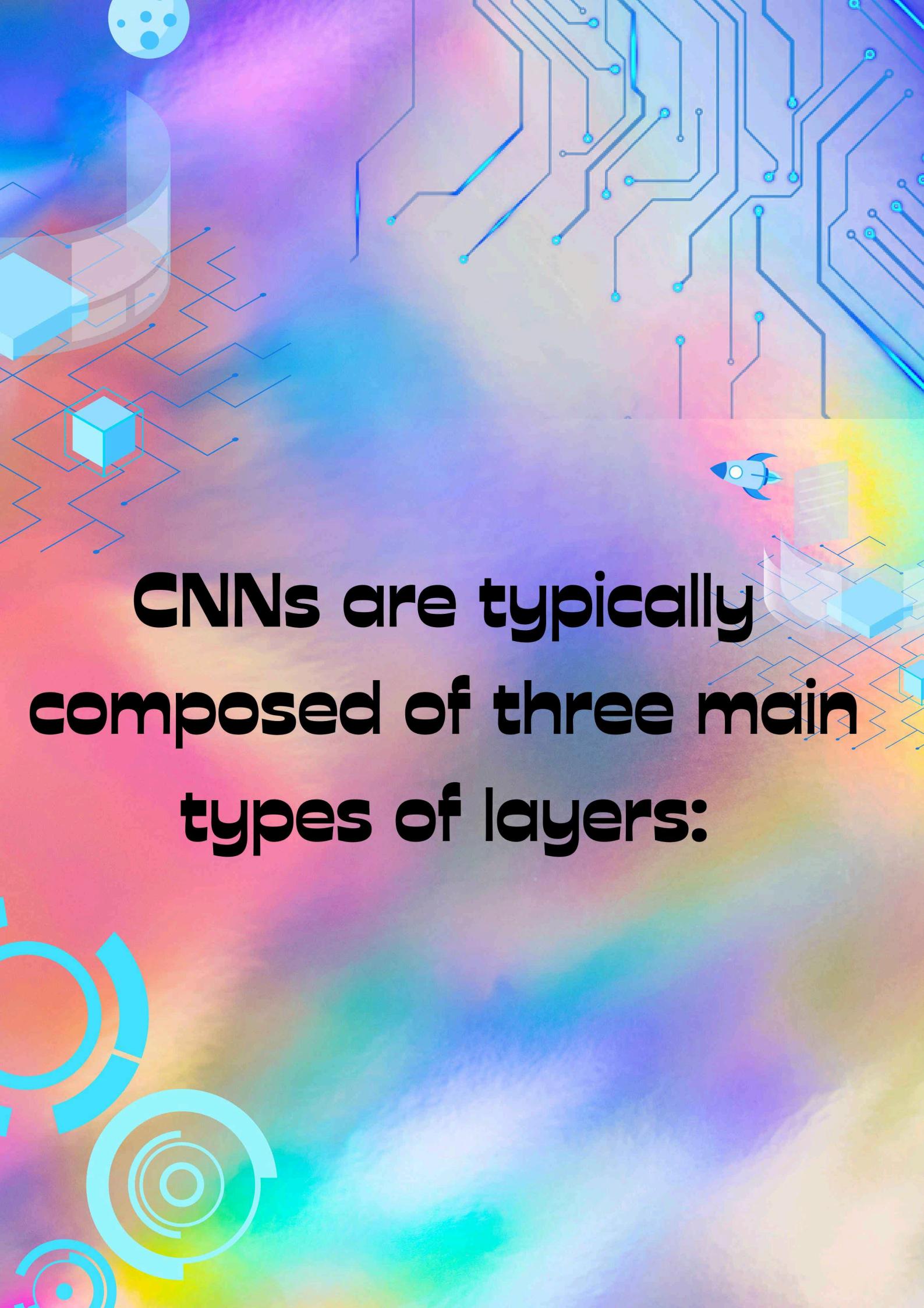
Tensorflow is a low-level library that provides a flexible and powerful backend for machine learning computations.

Keras is a high-level API that builds on top of Tensorflow and makes it easier to build and train ANNs.

**This is a basic example
of how to build and
train an ANN with
Tensorflow and Keras.
You can experiment
with different model
architectures,
hyperparameters, and
activation functions to
improve the
performance of your
model.**

Convolutional Neural Networks

Convolutional Neural Networks (CNNs) are a type of deep learning neural network that are particularly well-suited for image recognition and classification tasks. CNNs are inspired by the structure and function of the human visual cortex, which is able to learn and extract features from images in a hierarchical manner.

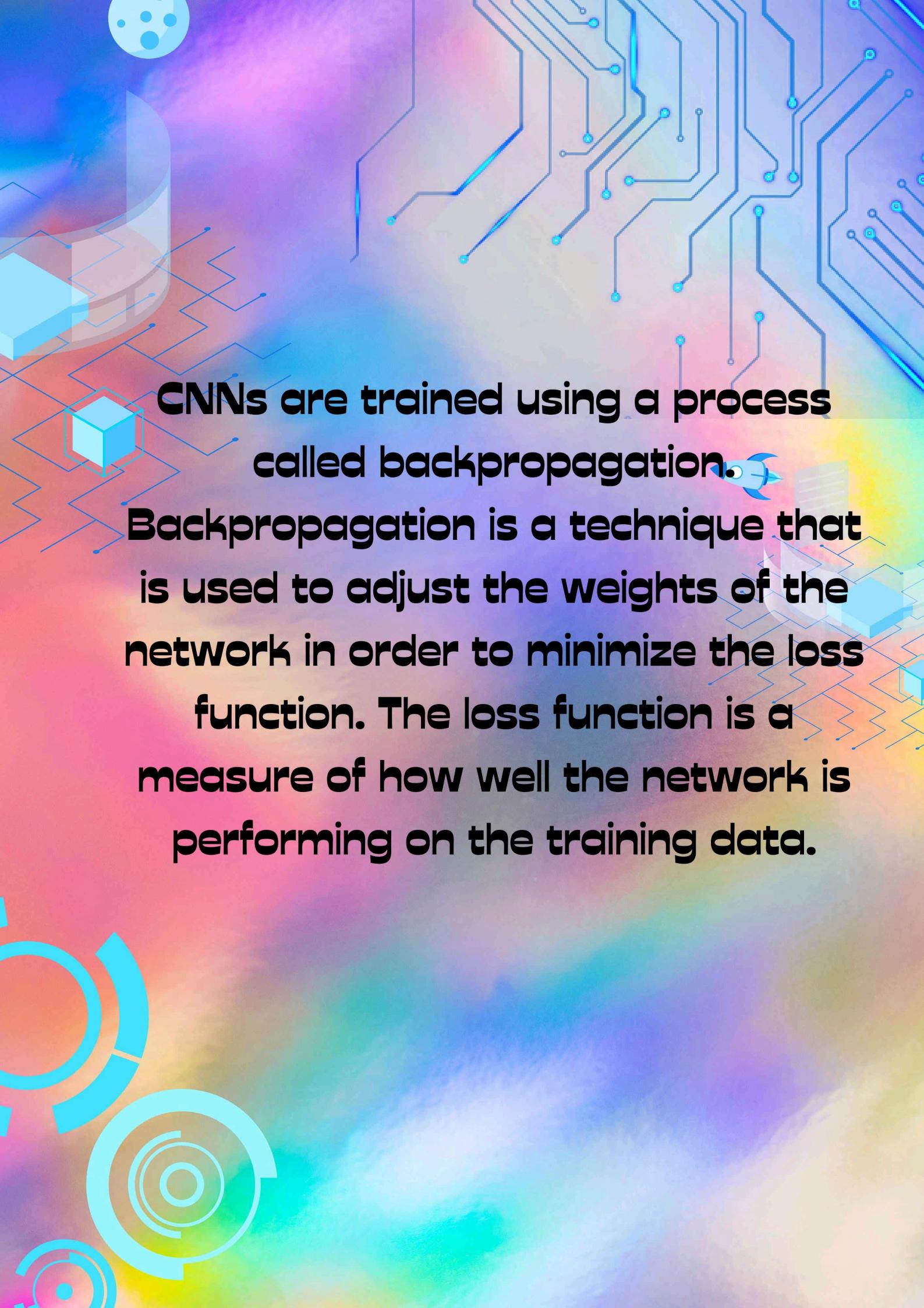


**CNNs are typically
composed of three main
types of layers:**

Convolutional layers: These layers apply a convolution operation to the input image. The convolution operation is a mathematical operation that slides a filter over the input image and computes the dot product of the filter with the input image at each position. This results in a feature map, which is a new image that represents the learned features from the input image.

Pooling layers: These layers downsample the feature maps from the convolutional layers. This helps to reduce the computational cost of the network and to make the network more robust to noise and translation.

Fully connected layers:
These layers are similar to the layers in a traditional neural network. They are used to combine the features from the pooling layers and to make predictions about the input image.



CNNs are trained using a process called backpropagation.

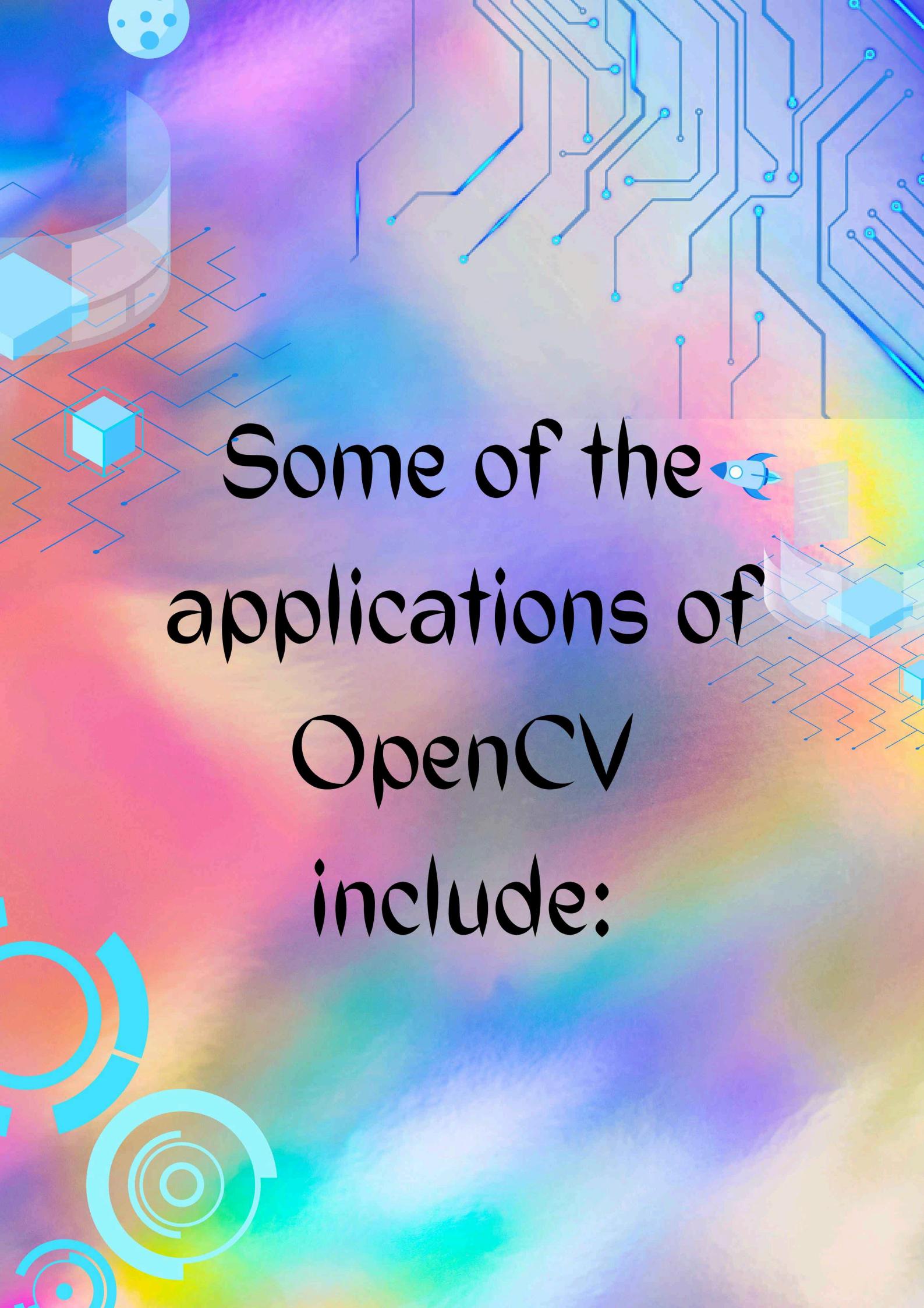
Backpropagation is a technique that is used to adjust the weights of the network in order to minimize the loss function. The loss function is a measure of how well the network is performing on the training data.



OPENEV

OpenCV (Open Source Computer Vision Library) is a free and open-source computer vision and machine learning software library. It is released under the permissive **BSD** license. OpenCV includes a comprehensive set of algorithms for computer vision tasks such as facial recognition, object detection, feature extraction, and image processing.

OpenCV is a popular library for computer vision research and development, and it is also used in many commercial products.



Some of the  applications of
OpenCV
include:

- **Image processing:** OpenCV can be used for image processing tasks, such as image resizing, filtering, color conversion, and edge detection.
- **Video processing:** OpenCV can be used for video processing tasks such as video encoding and decoding, object tracking, and motion detection.

Machine learning: OpenCV can be used to train and deploy machine learning models for computer vision tasks such as image classification, object detection, and facial recognition.

Thanking
You

