

A Novel method for handwritten digit recognition system

Project Objectives

TEAM ID: PNT2022TMID33236

The objectives of this project is as follows:

1)To know the fundamental concepts and techniques of Artificial intelligence and Convolution Neural network

Artificial intelligence

Artificial neural networks (ANNs) are comprised of a node layers, containing an input layer, one or more hidden layers, and an output layer. Each node, or artificial neuron, connects to another and has an associated weight and threshold. If the output of any individual node is above the specified threshold value, that node is activated, sending data to the next layer of the network. Otherwise, no data is passed along to the next layer of the network.

Convolution Neural network

Convolutional neural networks (CNNs) are similar to feedforward networks, but they're usually utilized for image recognition, pattern recognition, and/or computer vision. These networks harness principles from linear algebra, particularly matrix multiplication, to identify patterns within an image.

2)Gain a broad understanding of image data.

Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics/features associated with that image.

3)Work with Sequential type of modeling

Simply described, sequence modelling is the process of producing a sequence of values from a set of input values. These input values could be time-series data, which shows how a certain variable, such as demand for a given product, changes over time. Sequence models are the machine learning models that input or output sequences of data. Sequential data includes text streams, audio clips, video clips, time-series data and etc. Recurrent Neural Networks (RNNs) is a popular

algorithm used in sequence models.

4)Work with Keras capabilities

Keras is used for creating deep models which can be productized on smartphones. Keras is also used for distributed training of deep learning models. Keras is used by companies such as Netflix, Yelp, Uber, etc.

5)Work with image processing

Image processing is done to enhance an existing image or to sift out important information from it. This is important in several Deep Learning-based Computer Vision applications, where such preprocessing can dramatically boost the performance of a model. Manipulating images, for example, adding or removing objects to images, is another application, especially in the entertainment industry.

- 1: Image Enhancement.
- 2: Image Restoration.
- 3: Image Segmentation.
- 4: Object Detection.
- 5: Image Compression.
- 6: Image Manipulation.
- 7: Image Generation
- 8: Image-to-Image Translation.

6)know how to build a web application using the Flask framework.

Step 1 — Installing Flask.

Step 2 — Creating a Base Application. ...

Step 3 — Using HTML templates. ...

Step 4 — Setting up the Database. ...

Step 5 — Displaying All Posts. ...

Step 6 — Displaying a Single Post.

