

## **Abstract :**

CNN means Convolution Neural Network There are so many choices for CNN architecture. The best may be the simplest, or it may be the most efficient at producing accuracy while minimizing computational complexity. In this kernel, we will run experiments to find the most accurate and efficient CNN architecture for classifying MNIST handwritten digits. Over the years, CNN has found a good grip over classifying images for computer visions and now it is being used in healthcare domains too. This indicates that CNN is a reliable deep learning algorithm for an automated end-to-end prediction. CNN essentially extracts ‘useful’ features from the given input automatically making it super easy for us.

## **Introduction :**

CNN is a deep learning technique to classify the input automatically (well, after you provide the right data). Over the years, CNN has found a good grip over classifying images for computer visions and now it is being used in healthcare domains too. This indicates that CNN is a reliable deep learning algorithm for an automated end-to-end prediction. CNN essentially extracts ‘useful’ features from the given input automatically making it super easy for us.

Convolution neural networks (CNN) – the concept behind recent breakthroughs and developments in deep learning.

CNNs have broken the mold and ascended the throne to become the state-of-the-art [computer vision](#) technique. Among the different types of [neural networks](#) (others include recurrent neural networks (RNN), long short term memory (LSTM), artificial neural networks (ANN), etc.), CNNs are easily the most popular.

These convolution neural network models are ubiquitous in the image data space. They work phenomenally well on computer vision tasks like image classification, object detection, image recognition, etc.

## **Results :**

size=29998

cutoff=27000

It is a dataset of 60,000 small square 28×28 pixel grayscale images of handwritten single digits between 0 and 9.

Convolution neural networks that achieve a classification accuracy of above 99%,

Discussion :

### **CNN implement**

#### **Convolutional Neural Network (CNN)**

1. On this page.
2. Import Tensor Flow.
3. Download and prepare the CIFAR10 dataset.
4. Verify the data.
5. Create the convolution base.
6. Add Dense layers on top.
7. Compile and train the model.
8. Evaluate the model.

an error rate of 1.74 .

in this post we discovered the MNIST handwritten digit recognition problem and deep learning models developed in Python using the Keras library that are capable of achieving excellent results.

Working through this tutorial you learned:

- How to load the MNIST dataset in Keras and generate plots of the dataset.
- How to reshape the MNIST dataset and develop a simple but well performing perception model on the problem.
- How to use Keras to create convolution neural network models for MNIST.
- How to develop and evaluate larger CNN models for MNIST capable of near world class results.