**AKASH R**

**Literature Survey:**

IEEE Papers:

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| **Sr. No** | **Title of Paper** | **Name of Authors** | **Published Year** | **Remarks** |
| 1. | Bangla Handwritten Digit Recognition Using an Improved Deep Convolutional Neural Network Architecture | Chandrika Saha, Rahat Hossain Faisal and Md. Mostafijur Rahman | 7-9 February, 2019 | Deep Convolutional Neural Network has recently gained popularity because of its improved performance over the typical machine learning algorithms. However, it has been very rarely used on recognition of Bangla handwritten digit. This paper proposes a Deep Convolutional Neural Network (DCNN) based Bangla handwritten digits recognition scheme. The proposed method applies a seven layered D-CNN containing three convolution layers, three average pool layers and one fully connected layer for recognizing Bangla handwritten digits. Rigorous experimentation on a relatively large Bangla digit dataset namely, CMATERdb 3.1.1 provides considerable recognition accuracies |
| 2. | Handwritten Digit Recognition Using CNN | Mayank Jain, Gagandeep Kaur,  Muhammad Parvez Quamar, Harshit Gupta | 2021 | The issue of transcribed digit acknowledgment has for some time been an open issue in the field of example order. A few examined have demonstrated that Neural Network has an incredible execution in information arrangement. The fundamental target of this paper is to give effective and solid procedures to acknowledgment of transcribed numerical by looking at different existing arrangement models. This paper thinks about the exhibition of Convolutional Neural Network (CCN). Results demonstrate that CNN classifier beat over Neural Network with critical improved computational effectiveness without relinquishing execution. Handwritten digit recognition can be performed using the Convolutional neural network from Machine Learning. Using the MNIST (Modified National Institute of Standards and Technologies) database and compiling with the CNN gives the basic structure of my project development. So, basically to perform the model we need some libraries such as NumPy, ‘Pandas’, TensorFlow, Keras. These are the main structure on which my main project stands. |
| 3. | HDSR-Flor: A Robust End-to-End System to Solve the Handwritten Digit String Recognition Problem in Real Complex Scenarios | ARTHUR FLOR DE SOUSA NETO,  BYRON LEITE DANTAS BEZERRA,  ALEJANDRO HÉCTOR TOSELLI,  ESTANISLAU BAPTISTA LIMA | November 18, 2020 | Automatic handwriting recognition systems are of interest for academic research fields and for commercial applications. Recent advances in deep learning techniques have shown dramatic improvement in relation to classic computer vision problems, especially in Handwritten Text Recognition (HTR). However, several approaches try to solve the problem of deep learning applied to Handwritten Digit String Recognition (HDSR), where it has to deal with the low number of trainable data, while learning to ignore any writing symbol around the digits (noise). In this context, we present a new optical model architecture (GatedCNN-BGRU), based on HTR workflow, applied to HDSR. The International Conference on Frontiers of Handwriting Recognition (ICFHR) 2014 competition on HDSR were used as baselines to evaluate the effectiveness of our proposal, whose metrics, datasets and recognition methods were adopted for fair comparison |
| 4. | Capsule-Based Persian/Arabic Robust Handwritten Digit Recognition Using EM Routing | Ali Ghofrani,  Rahil Mahdian Toroghi | 6 and 7 March,2019 | the problem of handwritten digit recognition has been addressed. However, the underlying language is Persian/Arabic, and the system with which this task is a capsule network (CapsNet) which has recently emerged as a more advanced architecture than its ancestor, namely CNN (Convolutional Neural Network). The training of the architecture is performed using Hoda dataset, which has been provided for Persian/Arabic handwritten digits. The output of the system, clearly outperforms the results achieved by its ancestors, as well as other previously presented recognition algorithms |
| 5. | Mobile Client- Server Approach for Handwriting Digit Recognition | Hasbi Ash Shiddieqy,  Trio Adiono,  Infall Syafalni | 2019 | In the era of an Internet of Things, pattern recognition technology is growing rapidly, especially by the massive implementations of artificial intelligence (AI). Selecting the right implementation for an AI algorithm for an application could be quite challenging and time-consuming. In this paper, we propose a client-server system implementation for handwriting digit recognition. A client-server is set based on TensorFlow with multiple models for classifications. The client is set based on a mobile application that the user inputs the digit by touch panel of the mobile. In this paper, the models at the server are trained and tested by using MNIST database of handwritten. In addition, we use convolutional neural network (CNN) to improve the performance of the neural network. The client-server allows many users to be accessed by AI model from the same time. The advantage of using clientserver approach is reducing power and time for processing handwriting recognition in client device. It also speeds up the time of development and implementation of algorithm on the server. |