**A Novel Method for Handwritten Digit Recognition System**

**Literature Survey:**

A survey on various research works based on Handwritten digit recognition system and similar techniques are discussed below.

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| **Year** | **Author & Title** | **Objective** | **Techniques** | **Results** |
| 2019 | Beatrice Lopez et al &  Modied MNIST | Implement their own CNNs from scratch | ResNet implementation | Accuracy of 97.553% on the Kaggle leaderboard. |
| 2020 | Hui‑huang Zhao et al &  Multiple classifiers fusion and CNN feature extraction for handwritten  digits recognition | CNN-base feature extraction for handwritten digit recognition method | CNN with MNIST  dataset | Accuracy of ≥98%. |
| 2021 | Khedidija Derdour et al &  Multiple Features Extraction and Classifiers Combination Based Handwriting Digit Recognition | Handwritten digit recognition using invariant features extraction | By using three methods of classifiers combination rule employ in MNIST database | Accuracy of 96.10% |
| 2021 | Ali Abdullah Yahya et al  A Novel Handwritten Digit Classification System Based on  Convolutional Neural Network Approach | Handwritten digit recognition using various architecture | CNN ,MNIST Dataset with addictive white Gaussian noise | Accuracy of 99.98%,  and 99.40% with  50% noise. |
| 2022 | Aby Motty et al  SMART DRAGOMAN: Handwritten Digit Recognition and Text to Speech Translation | Handwritten digit recognition | Keras library which contains some dataset | Accuracy of 99.21% on CNN |