Handwritten Digits Recognition using Convolutional Neural Network

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Abstract - Recent advancements in machine learning and artificial intelligence are pushing the frontier of what machines are capable of doing in all facets of business and the economy. Handwritten digits recognition is a complex task that is central to a variety of emerging applications. It has been widely used by machine learning researchers for implementing practical applications like computerized bank check numbers reading. In this project, we will use a convolutional neural network (CNN) which will be implemented using Keras library. CNN is a class of deep neural networks which is commonly applied for evaluating visual images. The testing will be conducted from the publicly available MNIST handwritten dataset which contains 60,000 training images and 10,000 testing images. The data will be pre-processed using matrices of size 28 X 28 with varying values. The optimizer used will be RMSProp while the activation function will be rectified linear unit (RLU). Through this project, we aim to achieve a high accuracy in recognizing handwritten digits using machine learning. We will use CNN for further studies in the field of speech recognition and text classification.