**Optimizing CNN Architectures for MNIST Handwritten Digits Classification**

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**SYNOPSIS**

MNIST, a widely used dataset for machine learning and computer vision tasks, consists of 28x28 grayscale images of handwritten digits (0-9). The primary objective with MNIST classification is to develop models capable of accurately identifying these digits. Convolutional Neural Networks (CNNs) have proven exceptionally effective in tackling this problem. Their ability to learn complex features within images through convolutional layers makes them particularly well-suited for image recognition tasks.

In the pursuit of determining the most effective CNN architecture for MNIST digit classification, a systematic exploration was undertaken. The objective was to uncover an architecture that maximizes accuracy while optimizing computational efficiency. This project involved conducting a series of experiments on various CNN architectures, evaluating their performance in terms of accuracy and computational complexity. The goal was not solely to achieve the highest accuracy but to strike a balance between accuracy and computational efficiency.

Through a methodical approach, different CNN architectures were assessed, considering different convolutional subsampling pairs, feature maps, dense layers, dropouts and other advanced features.