

Reviewing the Performance of Data Classification Using Modern Convolutional Neural Network Architectures

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Abstract

This research paper conducts a comprehensive review of the performance of data classification through the utilization of modern Convolutional Neural Network (CNN) architectures. Encompassing prominent designs such as GoogLeNet, MobileNet, VGG16, AlexNet, ResNet, and DenseNet, this study evaluates their effectiveness on established benchmark datasets. The analysis highlights ResNet's exceptional accuracy as a front-runner in deep and efficient architecture, while DenseNet displays competitive performance on CIFAR-10 and CIFAR100 with reduced parameters. This investigation underscores the adaptability of architectures to specific tasks, with ResNet excelling in intricate feature extraction tasks, and DenseNet optimizing parameter efficiency. The continuous exploration of novel CNN architectures persists, driven by the pursuit of heightened classification precision and the evolving landscape of datasets and computational capabilities, propelling the advancement of effective models across classification domains.

Keywords: *Convolutional Neural Network, Performance analysis, Deep learning*