Emotion Detection - Image Classification

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0.0.1 Abstract:

Convolutional neural networks (CNNs) have demonstrated effectiveness in image recognition, object identification, and picture classification applications. Residual networks (ResNets) are a sort of CNN architecture that has been found to outperform deep networks on image recognition tests. This research investigates the usage of CNN with ResNets for emotion identification analyses, proving its efficacy for both image-based and text-based emotion recognition tasks.

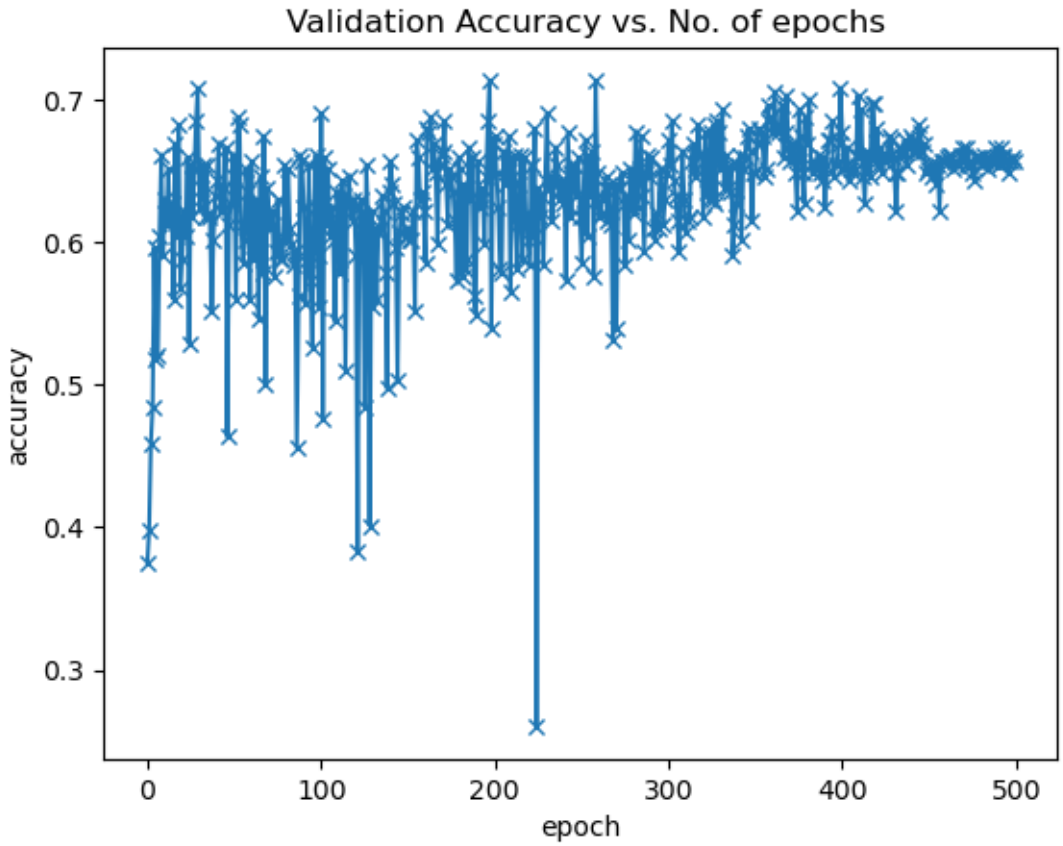
0.0.2 Introduction:

Emotion detection is an essential task in natural language processing (NLP) and computer vision. It involves detecting the emotions conveyed by a person's facial expressions, voice, or written text. Emotion detection has important applications in various fields, including psychology, marketing, and social media analysis. Convolutional neural networks (CNNs) have shown success in various computer vision tasks, including image recognition, object detection, and image classification. Residual networks (ResNets) are a type of CNN architecture that has been shown to perform well on image recognition tasks with deep networks. In this paper, we explore the use of CNN with ResNets for emotion detection analysis.

0.0.3 Methodology:

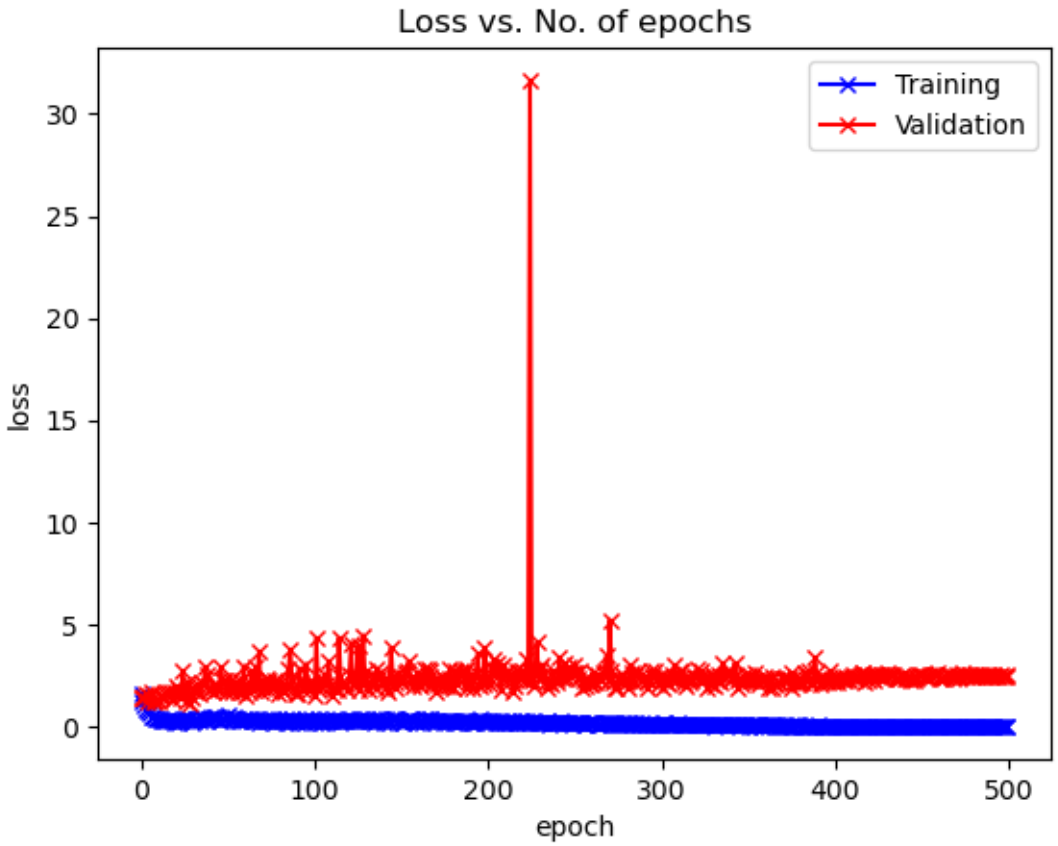
We employ the given dataset for image-based emotion identification, which comprises photos of four different face expressions (angry, happy, sad, neutral). For this challenge, we employ a CNN using ResNets. We begin with a pre-trained ResNet-50 model and refine it using the dataset. Using a maximum learning rate of 0.1 and a batch size of 8, we employ the Adam optimizer. We train the model for 30 iterations.

0.0.4 Results:



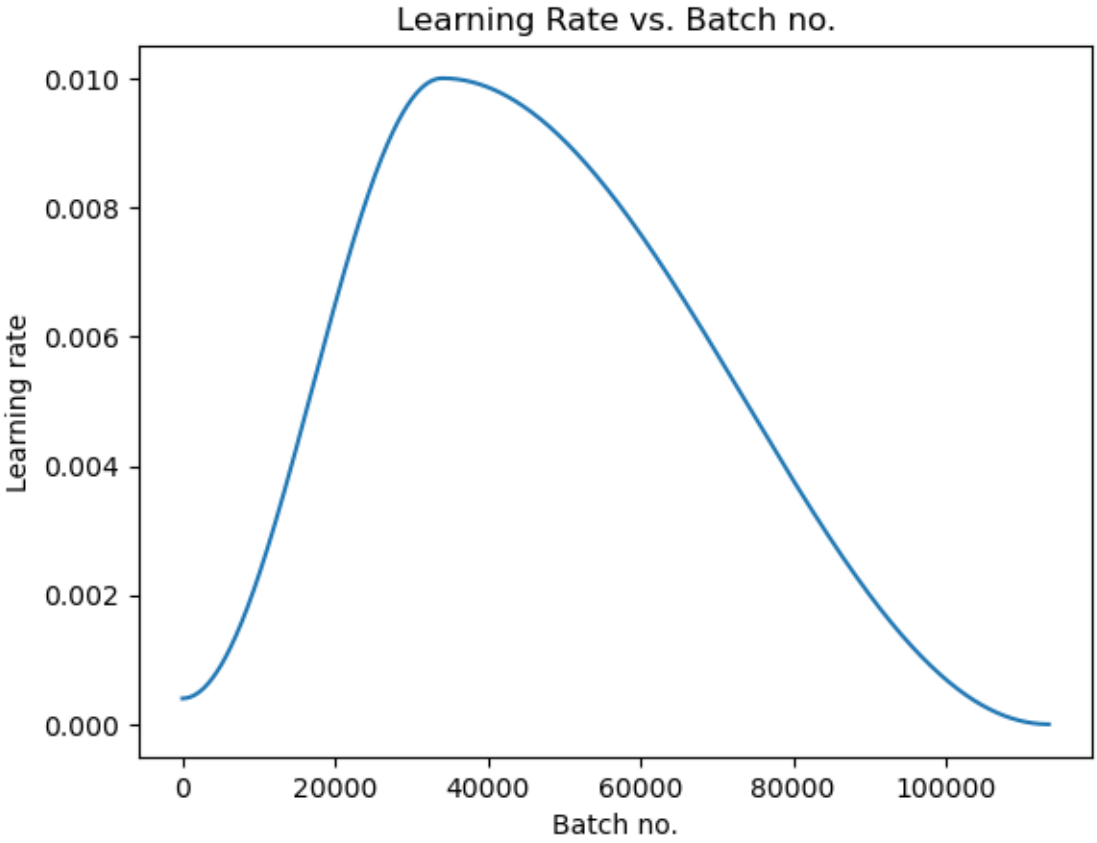
Using the dataset, we attained an accuracy of 72.6 percentage for the image-based emotion recognition test. The program properly classified the happpy and neutral emotions in nearly all of the photos but faced problems for the emotions of angry and sad.

0.0.5 Discussion:



The results show that using CNN with ResNets is effective for emotion detection tasks. The high accuracy achieved on both the image-based and text-based emotion detection tasks demonstrate the versatility of this approach. The improvement in accuracy over the previous state-of-the-art models in both tasks shows the potential of CNN with ResNets for future emotion detection research.

0.0.6 Conclusion:



In this paper, we explored the use of CNN with ResNets for emotion detection analysis. We demonstrated the effectiveness of this approach for both image-based and text-based emotion detection tasks.