DD2424: Project
The mechanisms, powers and limitations of some Data Augmentation techniques

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1 Introduction

After being briefly introduced to some data augmentation techniques during the lectures we wanted to explore this topic further. To deepen our knowledge about this topic we read about the data augmentation technique *mixup* which really got our interest because of it's ability to improve performance while being very simple. We therefore wanted to further try out this technique in practice and compare it with some other data augmentation teqniques, such as color magnification, rotation and other translations, to see how they can improve image classification. To clarify, our project does not aim to obtain the highest possible testing accuracy but rather aim to show the impact of data augmentation on the accuracy.

2 Data

In this project we will work with a dataset consisting of images of different species of birds, Bird Species Dataset. Each image has the format $224 \times 224 \times 3$ and there are a total of 190 species. The training data consist of 25812 images, but the data is not balanced, however each species has a least 100 training images. Both the validation set and the test set consist of 5 images of each species. It should also be saif that the around 80% of the images are of male birds and 20% of female birds which, by the nature of birds, may look entirely different. We will not always work with the full dataset but instead pick subsets of some species.

3 Mixup

I will write some about mixup and our variations of mixup / JAN

4 Experiments