PROJECT REPORT

COMPARISON BETWEEN EFFICIENTNETB0 AND RESNET50 ARCHITECTURE FOR PET FECES CLASSIFYING

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ABSTRACT

The following is an analysis comparing the performance and accuracy between EfficientNetB0 and ResNet50 architectures used to classify pet feces into four categories of diare, lack-of-water, normal, and soft-poop. Auto-Orient and Grayscaling are preprocess techniques used in the research to boost performance while complementary with hyperparameter tuning and data augmentation. Using a dataset from Roboflow, the data set was split into training, validation and test set and the experiments were conducted. They produced the following results without Auto-Orient preprocessing for EfficientNetB0, where it reached 97.48% accuracy and without Grayscale for ResNet50, where it reached 96.14% accuracy. The results indicate that EfficientNetB0 is computationally efficient while ResNet50 is heavily dependent on color features for classification. Specifically, the study shows this means the current state of the art model, EfficientNetB0, is appropriate for resource-poor environments, while ResNet50 is appropriate for cases where color makes a significant impact.

Keyword: EfficientNetB0, ResNet50, Pet Feces Classification, Convolutional Neural Networks (CNN), Hyperparameter Tuning, Data Augmentation.