

Animal Image Classification using Transfer Learning

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Internship: Unified Mentor

IDE Used: PyCharm

Language: Python

Libraries: TensorFlow, Keras, NumPy, Matplotlib

Model Used: MobileNetV2 (Transfer Learning)

OBJECTIVE

Build an image classification model that can classify 15 different animal species using deep learning.

DATASET

- Total Classes: 15
- Image Size: 224x224
- Folder per Class Format

APPROACH

1. Loaded dataset with ImageDataGenerator
2. Preprocessed and split data (80% train / 20% val)

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3. Used MobileNetV2 with pretrained ImageNet weights
4. Added custom dense layer (15 classes)
5. Trained for 10 epochs with Adam optimizer
6. Evaluated and plotted accuracy

TRAINING RESULTS

Epoch 1: Accuracy: 29.2% - Val Accuracy: 76.2%

Epoch 2: Accuracy: 76.0% - Val Accuracy: 85.3%

Epoch 3: Accuracy: 85.9% - Val Accuracy: 86.1%

Epoch 4: Accuracy: 87.6% - Val Accuracy: --

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Model training completed successfully.

Model saved as 'animal_model.h5'.

FUTURE SCOPE

- Add real-time image prediction support
- Deploy as a web app
- Implement advanced tuning strategies

Thank you!