Minimize Roadkills and Vehicle Damages

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Data Scientists

Problem Statement

DriveSafe Company would like to develop a system that will alert vehicle operators when animals appear on the road to reduce the occurrence of roadkills and the subsequent potential damage to the vehicle. The system will be based on the convolutional neural network image classification model that we are tasked to develop.

Dataset

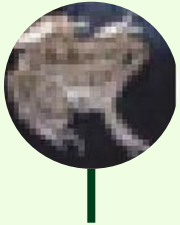
- Keras built-in dataset - CIFAR10
- 50,000 32 x 32 color training images
- 10,000 test images
- Training images are labeled, 10 classes in total
- Pickup trucks are not included
- Classes are mutually exclusive

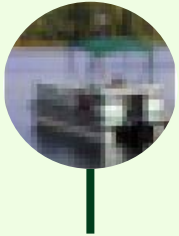
Classes of Images


airplane


bird


deer


frog


ship


automobile


cat


dog


horse


truck

Data Augmentation

Rotation

Randomly rotating the images by 15 degrees

Horizontal Flip

Randomly flipping the images horizontally

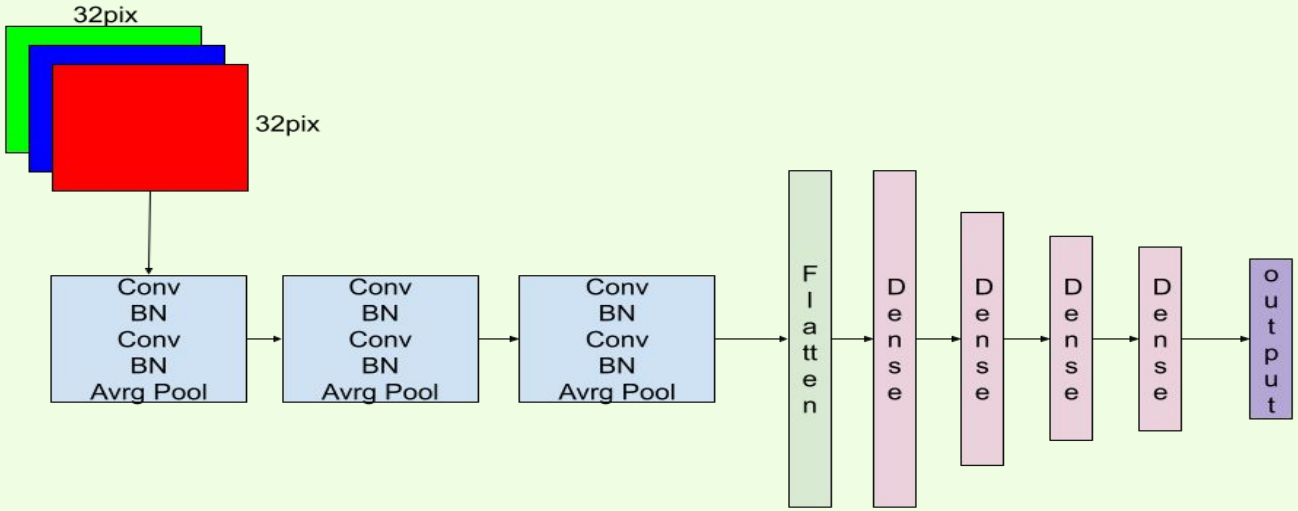
Height Shift

Randomly shifting the images vertically by up to 10% of their height

Width Shift

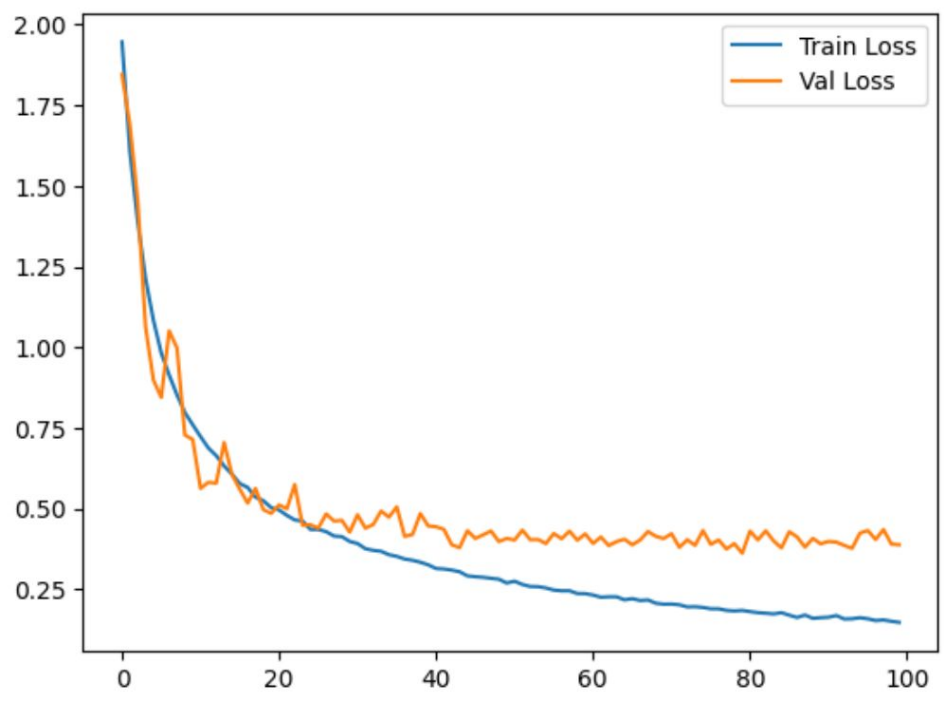
Randomly shifting the images horizontally by up to 10% of their width

Architecture

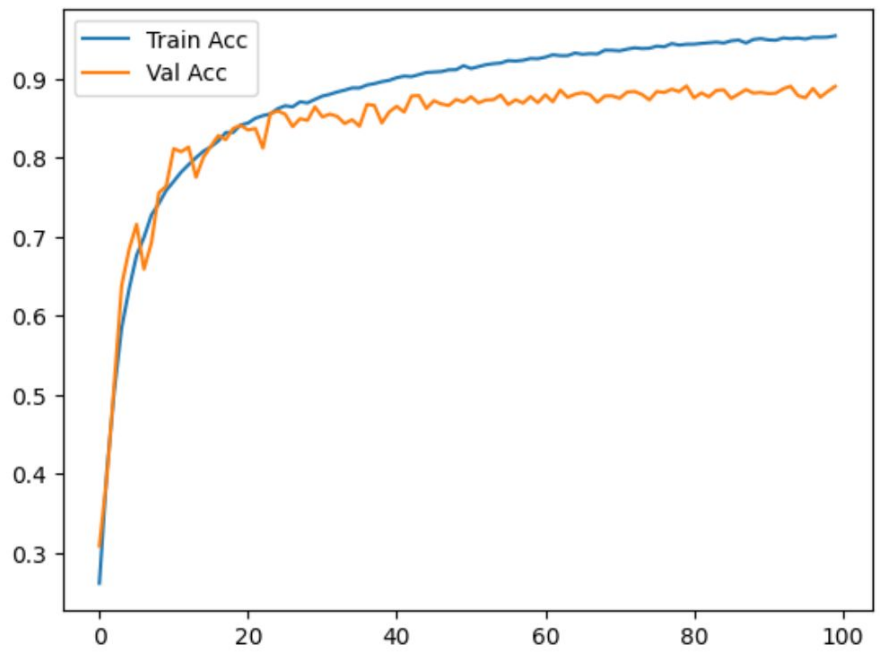


Results

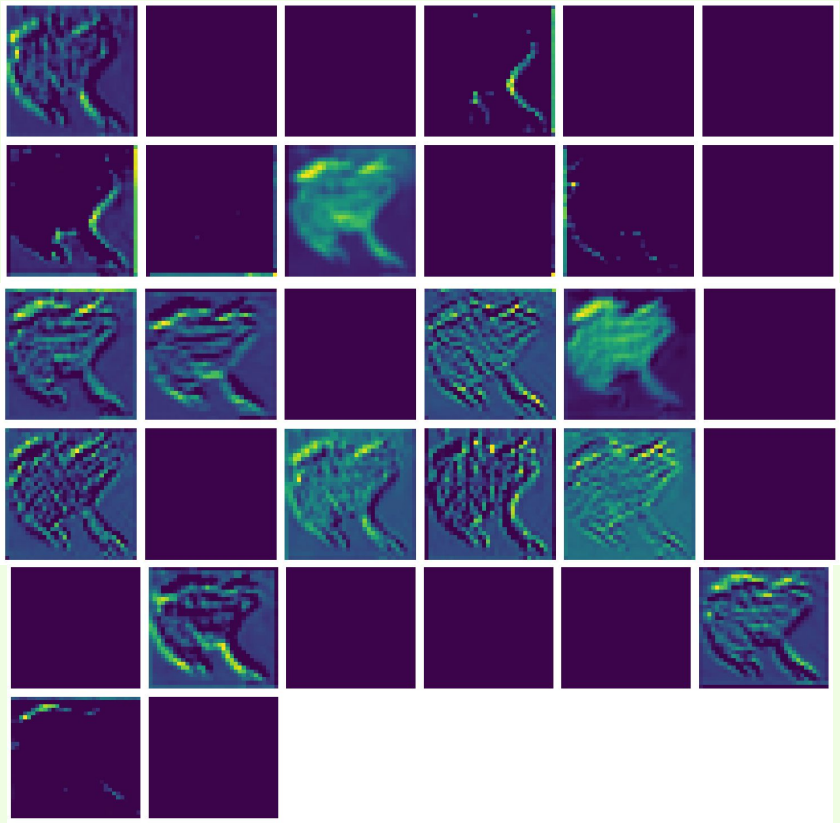
Loss



Accuracy



Feature Maps



THANK YOU!

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