

iBuild Automotive

Dream Team Consultation by Jadi Smith, Nicholas McBride, and Tanya Seegmiller

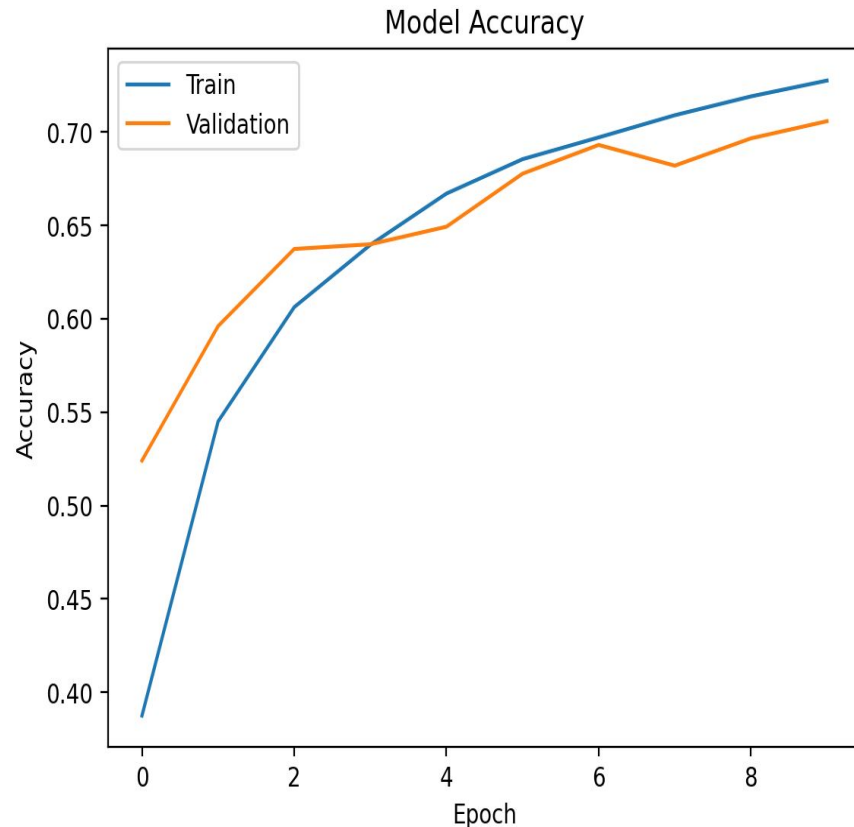
Problem Statement

As part of our collaboration with emerging machine manufacturer, iBuild Automotive, we have been tasked with developing a predictive image recognition system that will be used to allow iBuild Automotive to create autonomous vehicles. Our goal is to make a model that has enough intelligence to accurately identify other vehicle types such as airplanes, automobiles, ships, and trucks. We aim to have these vehicles navigate various, dynamic environments with the ability to avoid collision with objects in their surroundings.

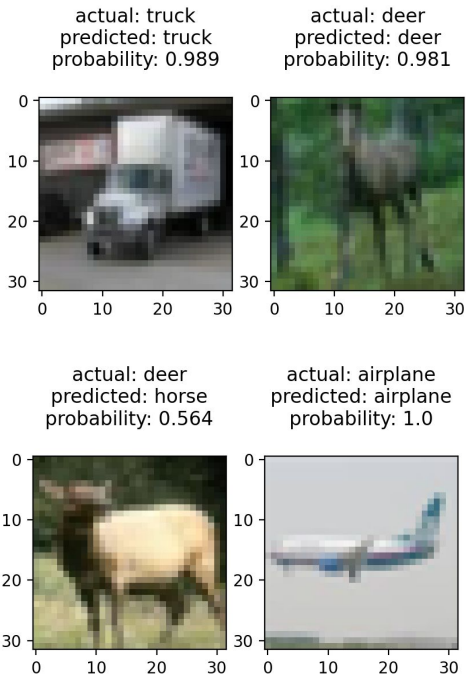
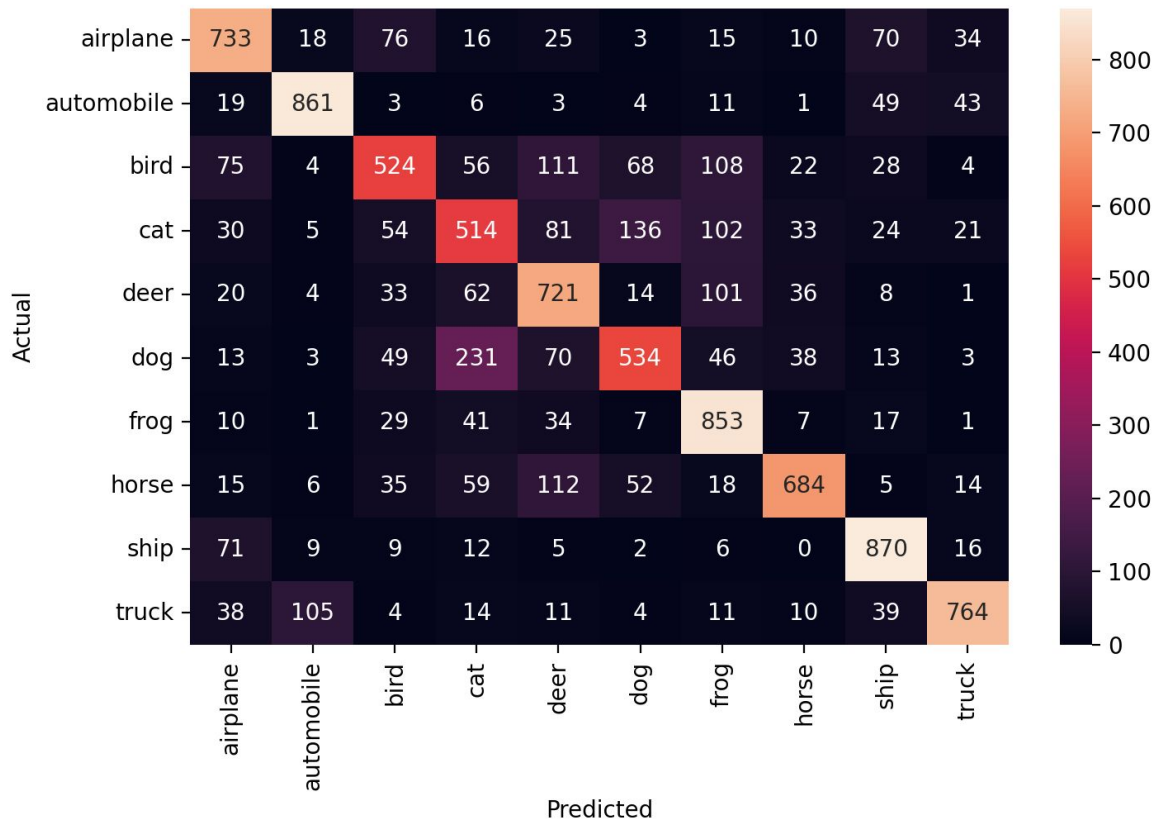


Model Building Approach

- Establish Baseline: 10%
- Model 1: 3 convolutional layers
 - 3 max pooling layers
 - 2 convo layers
 - 2 layer fully connected ANN layer
 - Accuracy = 60%
- Final Model: 6 convolution layers
 - 3 max pooling layers
 - 3 layer fully connected ANN with
 - dropout of 25%
 - relu and softmax.
 - Our optimizer in each model was Adam.
 - Accuracy = 71%



Model Performance: Test Accuracy 71%



Conclusion and Recommendations

Our model shows promising results in accurately identifying objects in diverse environments. We achieved an accuracy score indicating that for 6 out of 10 images, our detection system had a probability of being correct more than 50% of the time.

We will continue to fulfill contracts with iBuild Automotive where more examples of objects will be introduced to our detection system, increasing the model's ability to capture images more accurately.



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Data source: Keras CIFAR10 small images classification dataset

The Dream Team

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