Who Let The Dogs Out?

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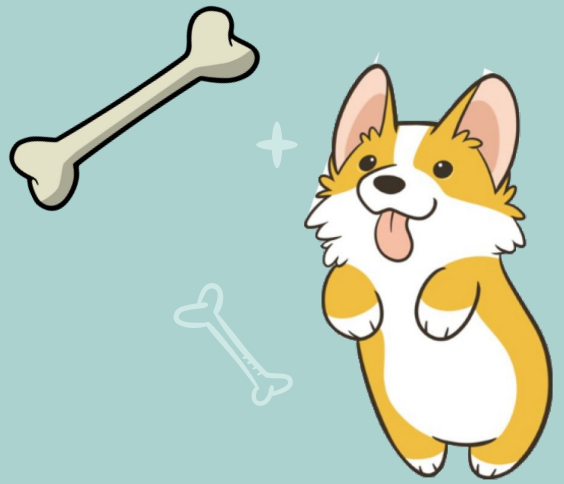
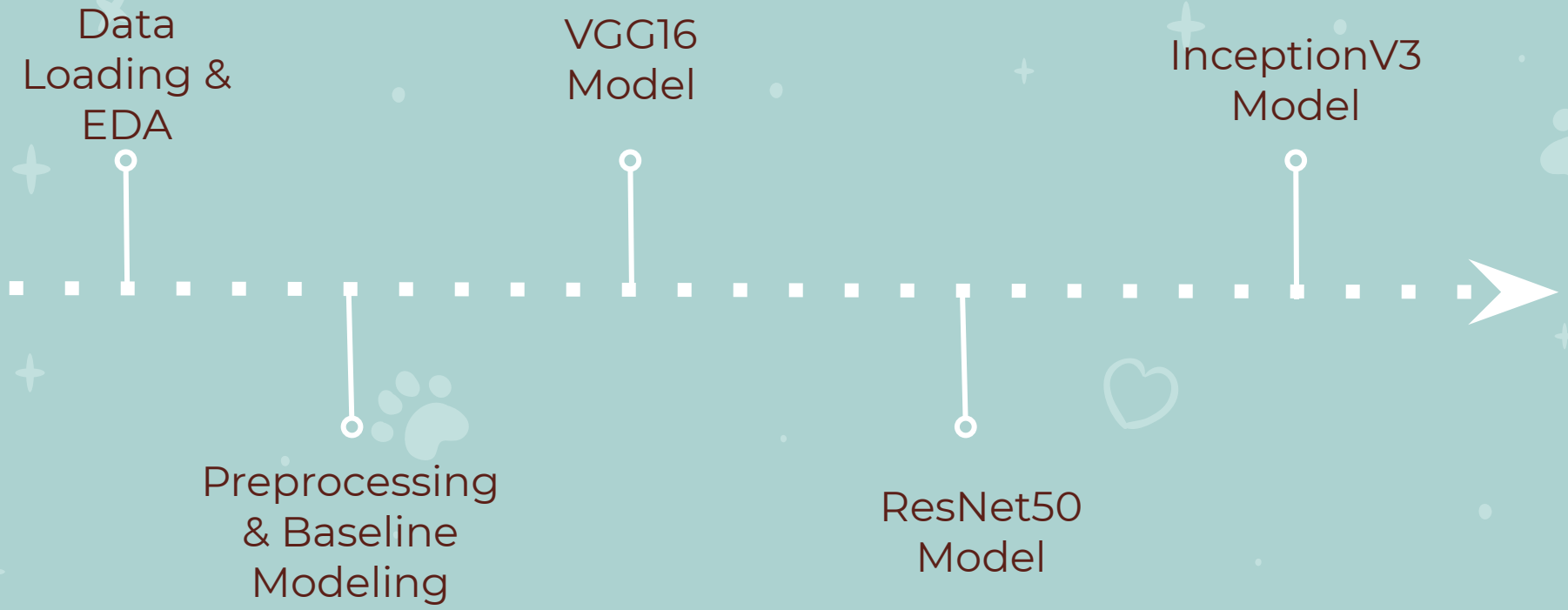
Introduction

- Objective: To Identify a dog's breed

- Purpose: With a breed classifier, humans may be more prone to adopt dogs and less likely to return dogs since more information is provided to them



Methodology



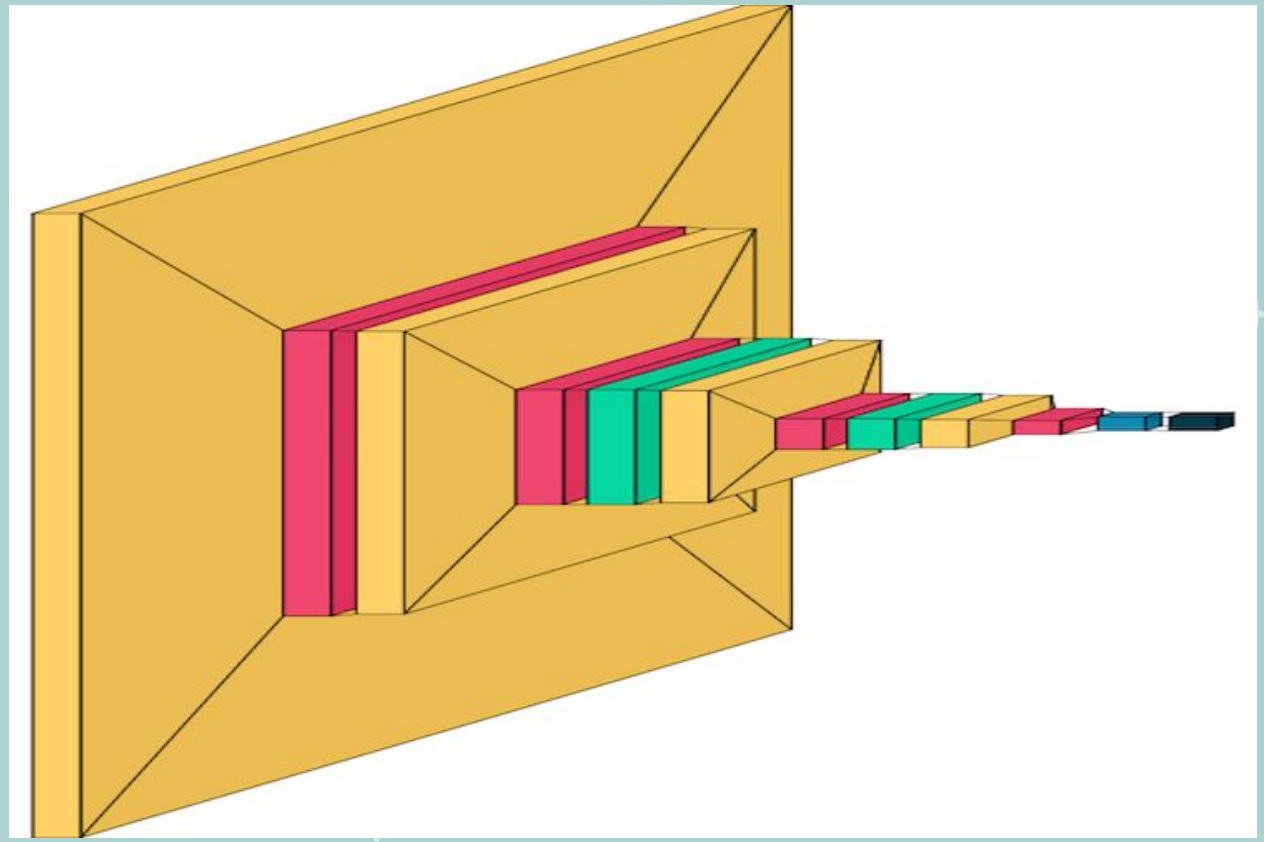
Dog Data Overview

Classes: 133 breeds

Images: 8351

- 6680 training images
  - Average 50 images per breed
- 835 validation images
- 836 test image

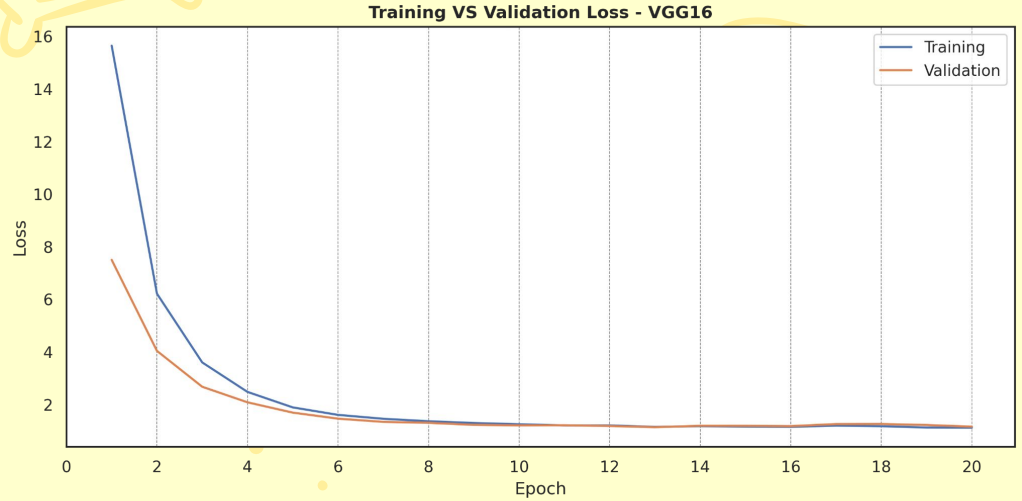
A Baseline CNN Architecture

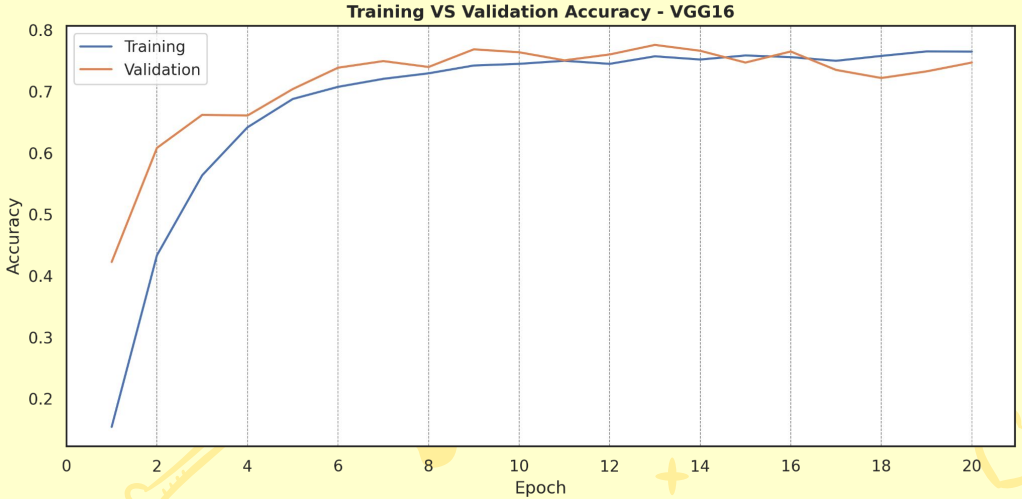


Test Accuracy: 3.9%

VGG16

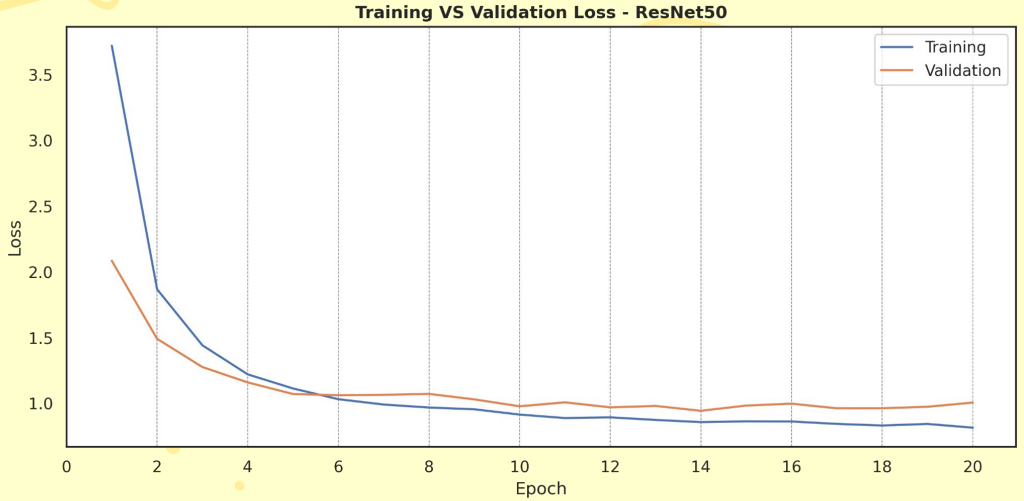
Test Accuracy: 76.3%

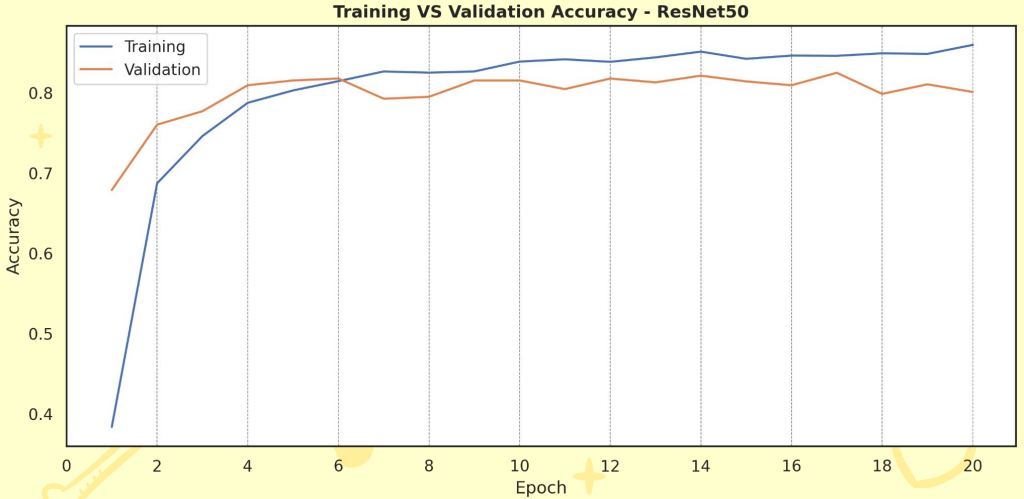




ResNet50

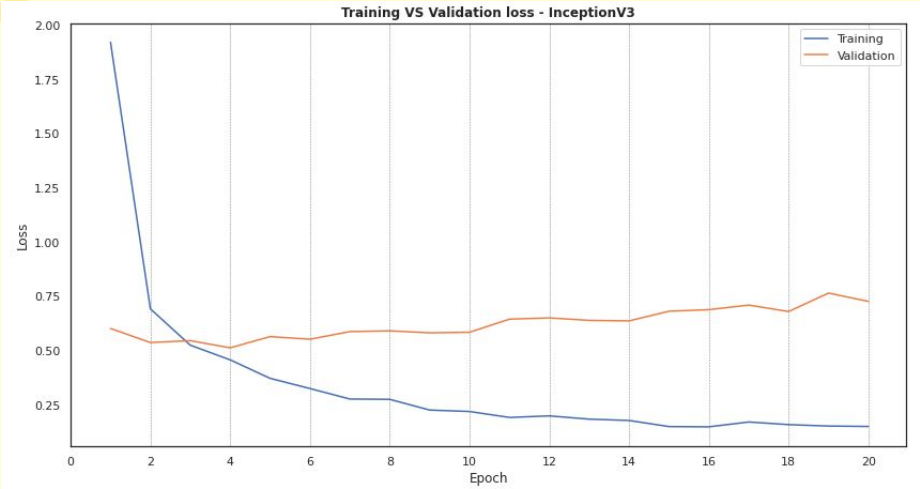
Test Accuracy: 80.7%

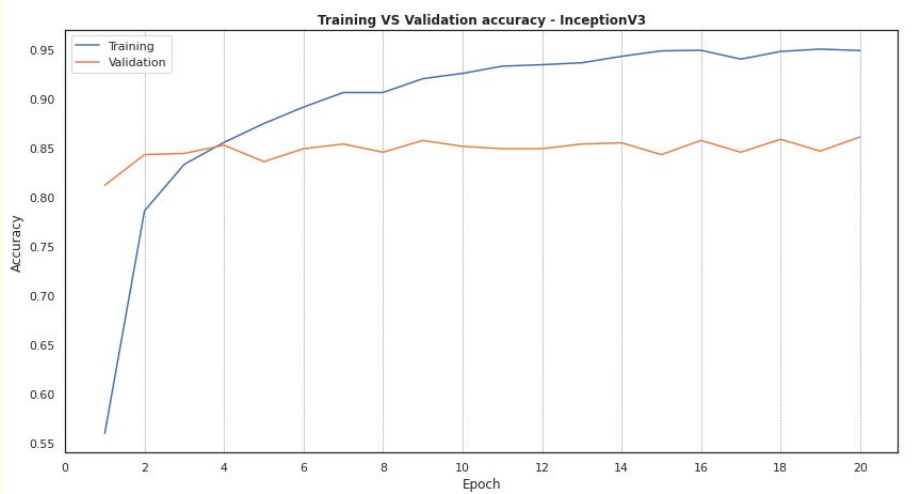




InceptionV3

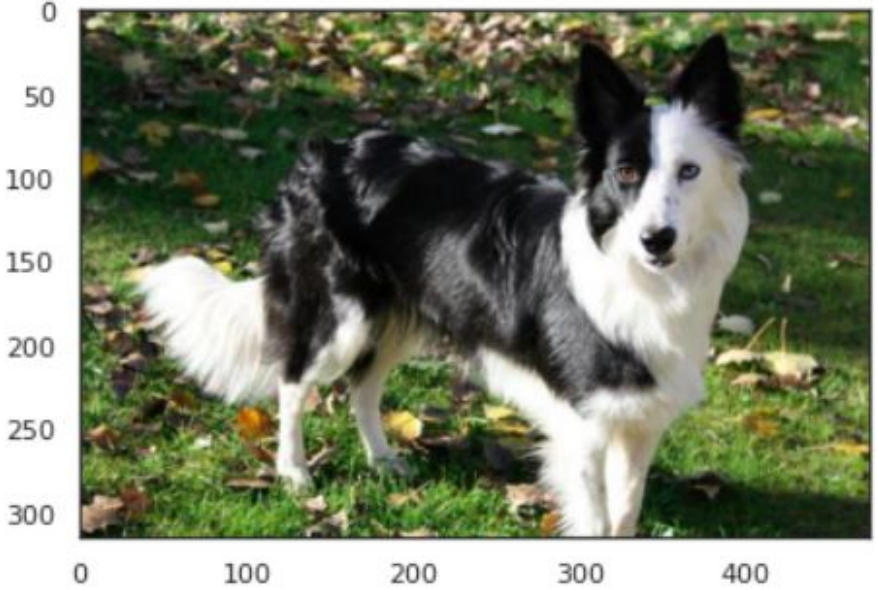
Test Accuracy: 81.3%



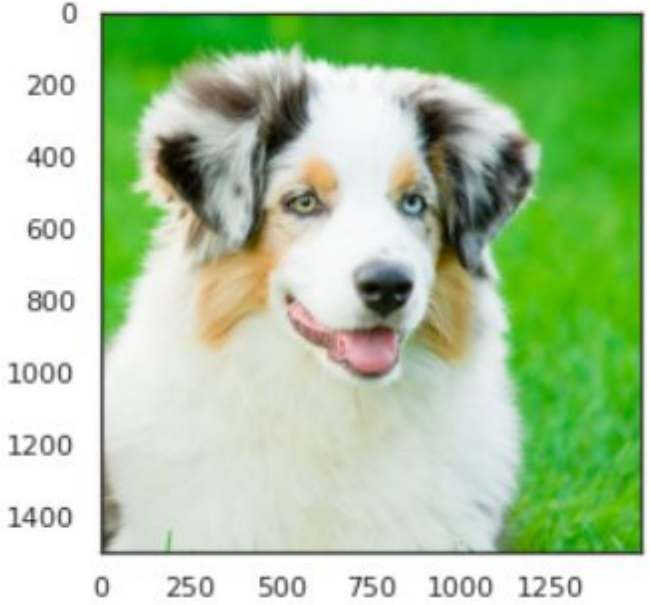


Guess the breed!

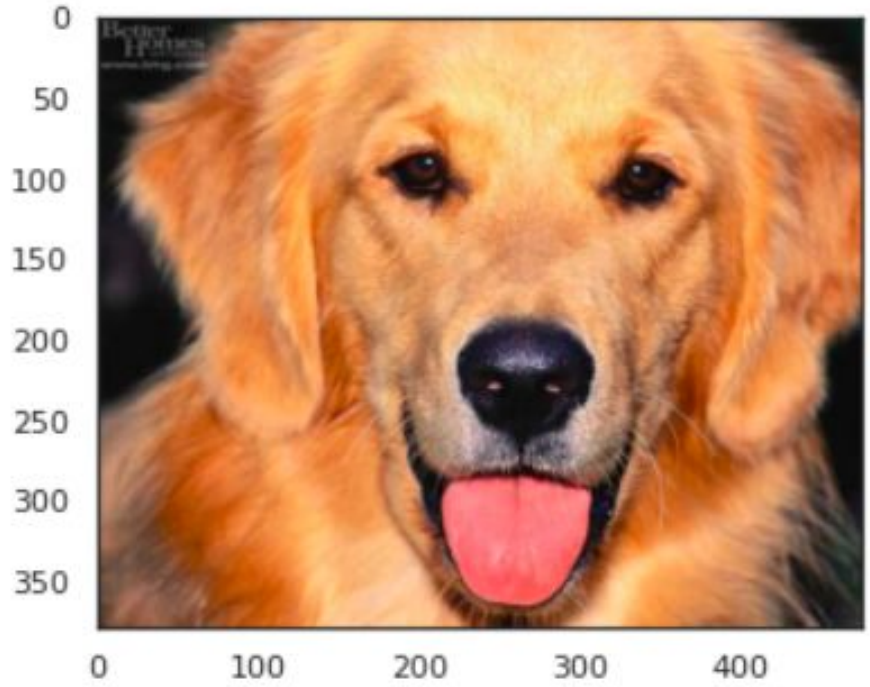
'Border Collie'



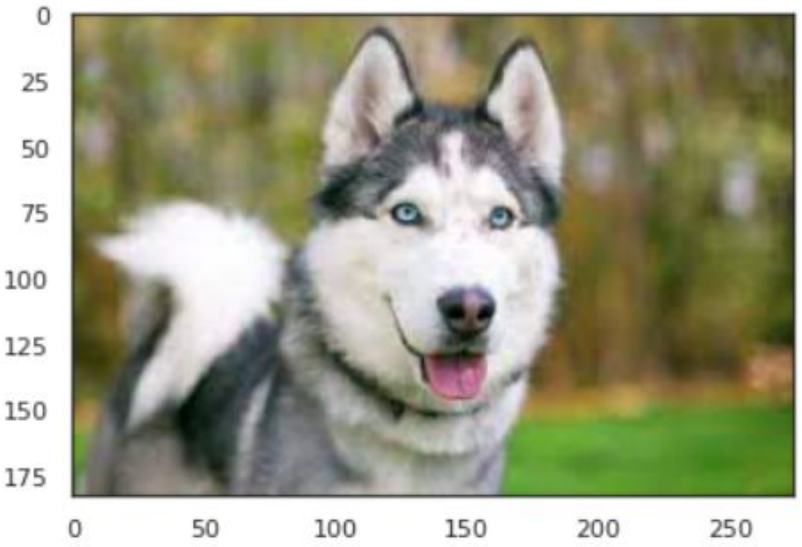
'Australian Shepherd'

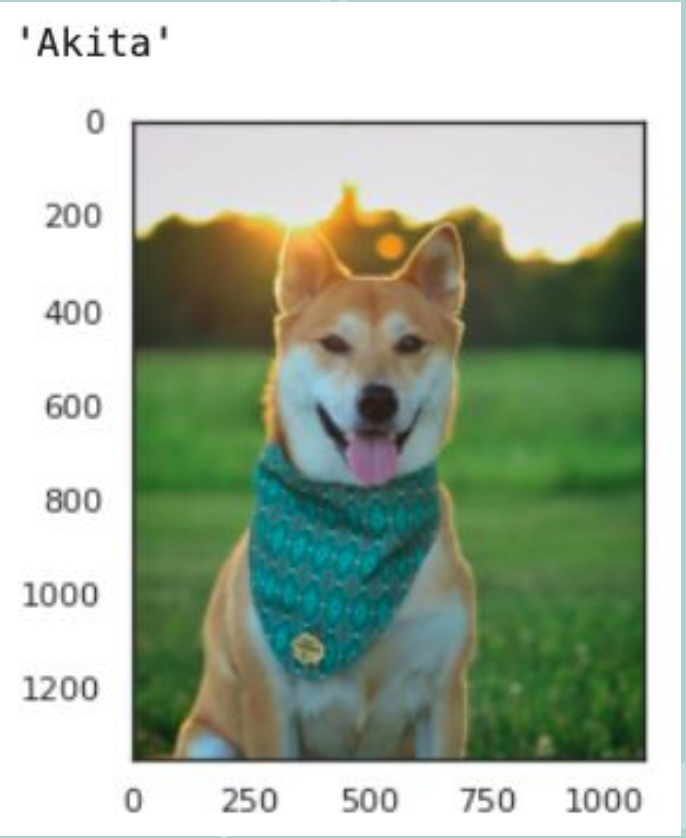


'Golden Retriever'

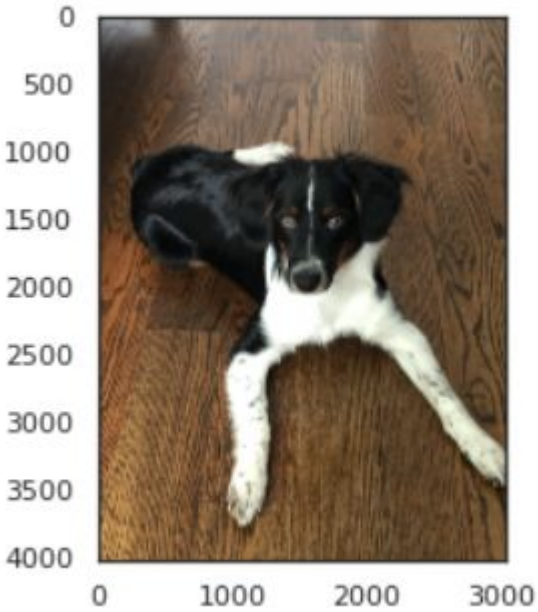


'Alaskan Malamute'




'Akita'
0
200
400
600
800
1000
1200
0
250
500
750
1000

'Chihuahua'



Future Work

- Increase the number of dog images
  - There are numerous dogs that are not purebred, many offsprings are the result of interbred mixing.
- Audio
  - By feeding the neural net more data, such as distinctive dog barks, it may help classify a particular breed better. For example, most Chihuahuas and Yorkies tend to have a higher pitch bark, where as a Doberman would have a lower pitch bark