

# Dataset



n02091635\_3900.jpg



n02091635\_3548.jpg



n02091635\_3048.jpg



n02091635\_1664.jpg



n02091635\_1357.jpg



n02091635\_1240.jpg



n02108915\_7806.jpg



n02089973\_4010.jpg



n02089973\_1356.jpg



n02116738\_6563.jpg



n02111129\_372.jpg



n02111277\_1288.jpg



n02111889\_12073.jpg



n02110627\_13939.jpg



n02110806\_757.jpg



n02110806\_1916.jpg



n02111129\_3301.jpg



n02111129\_2623.jpg



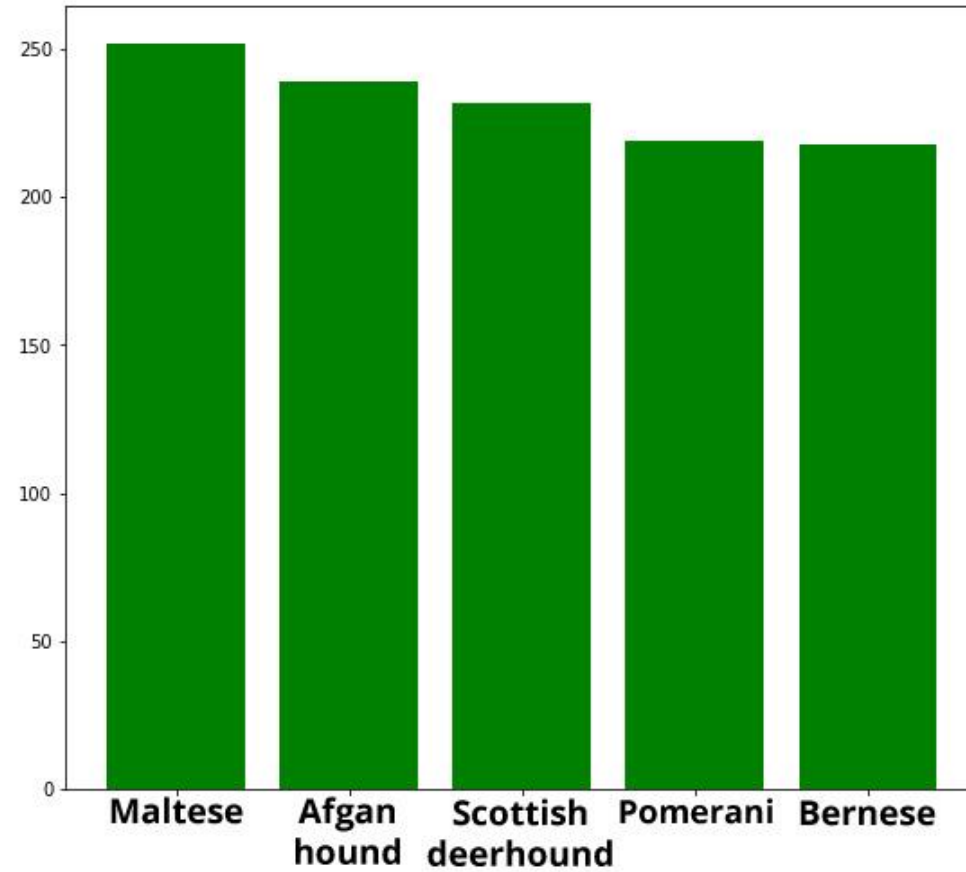
n02109047\_8912.jpg



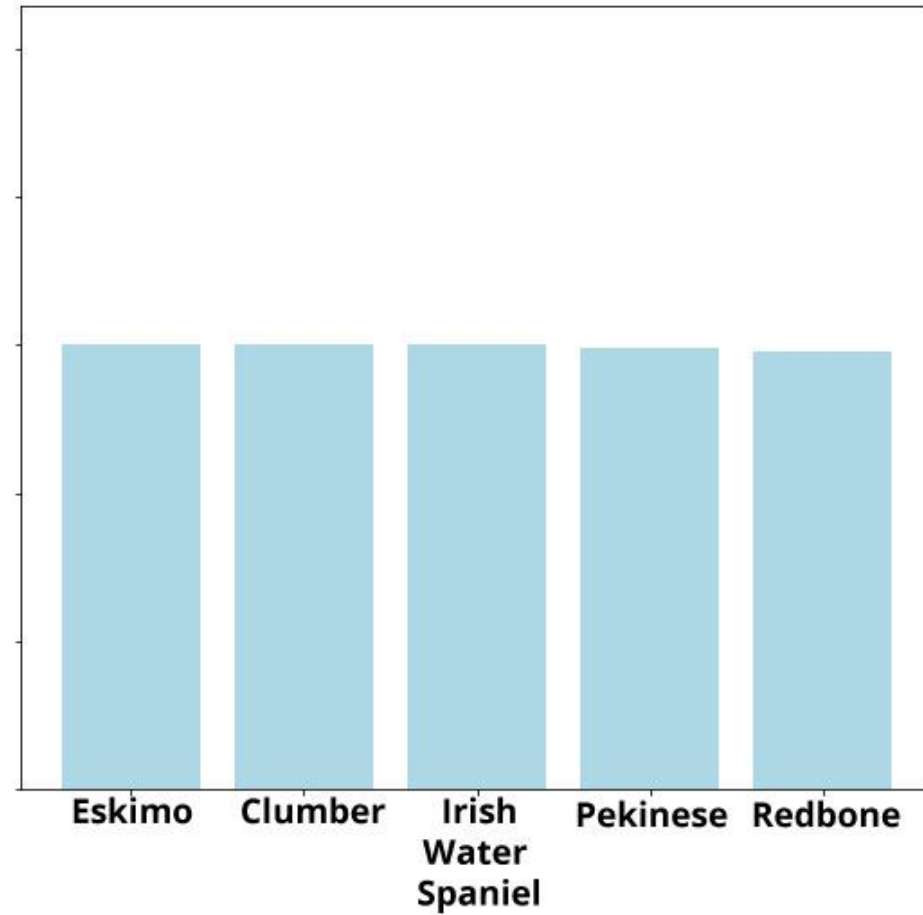
n02108000\_2163.jpg

# Data exploration

Most common dog breeds in dataset



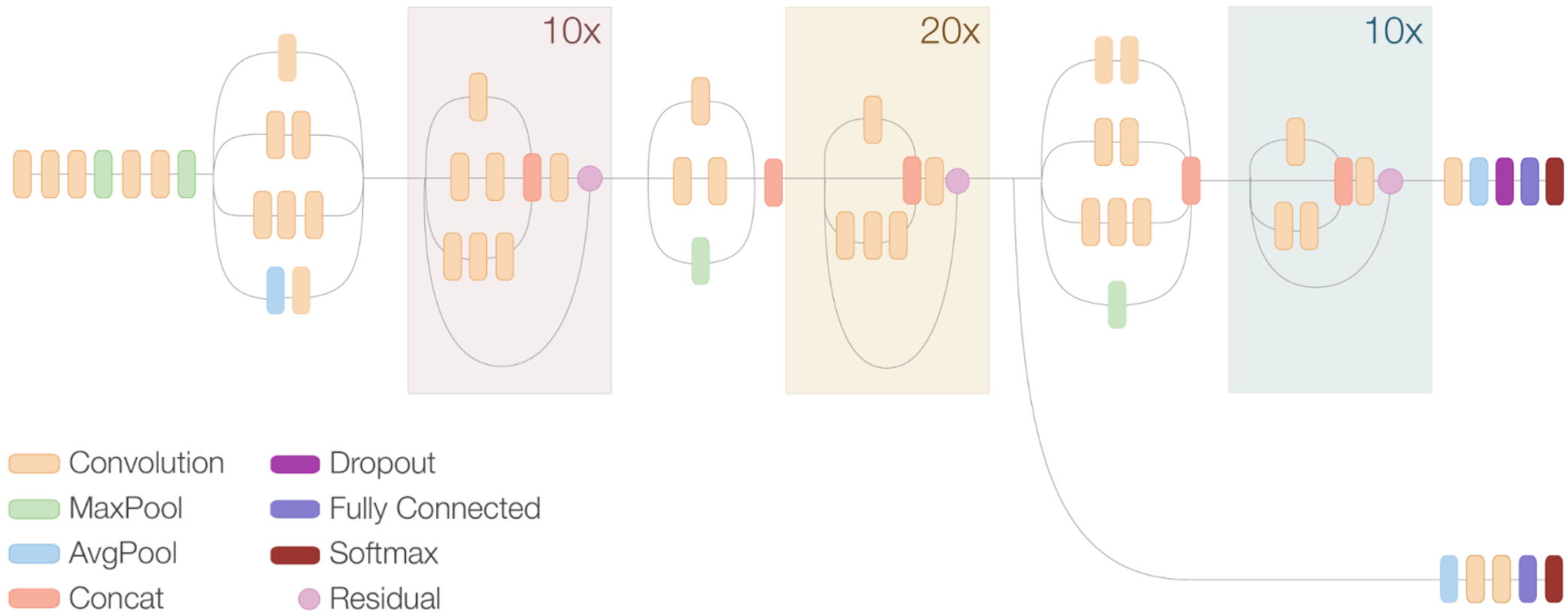
Least common dog breeds in dataset



# Data augmentation



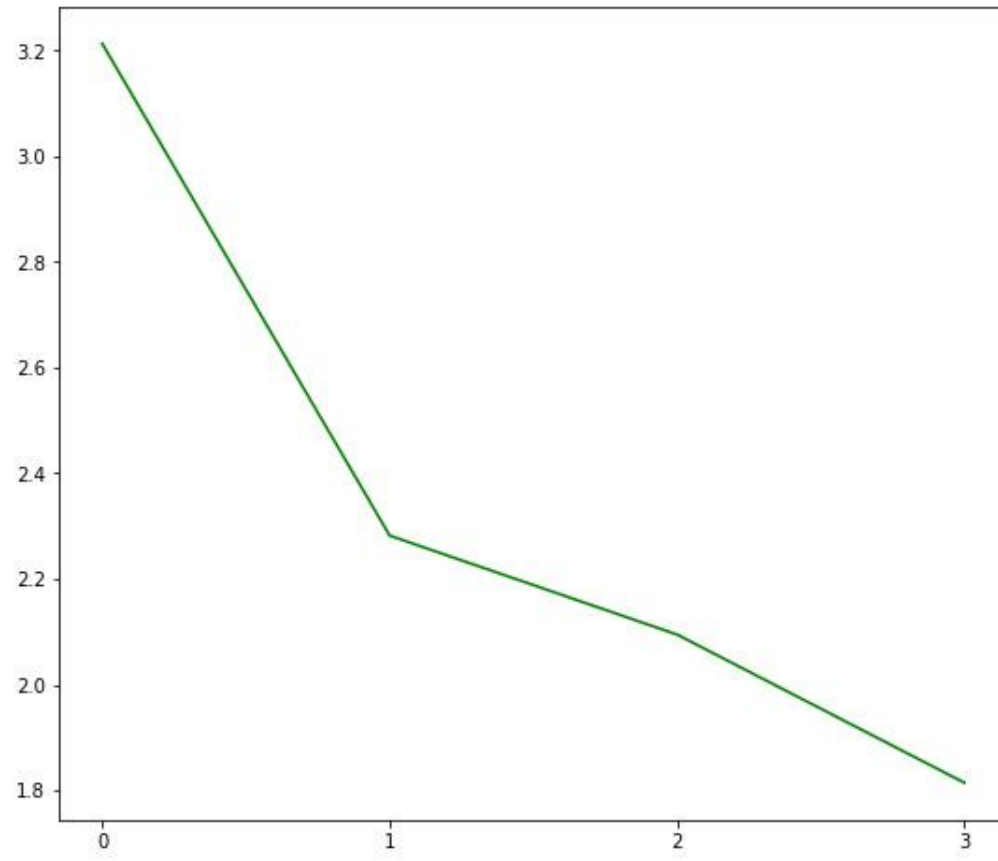
# Inception Resnet V2 Network, compressed view



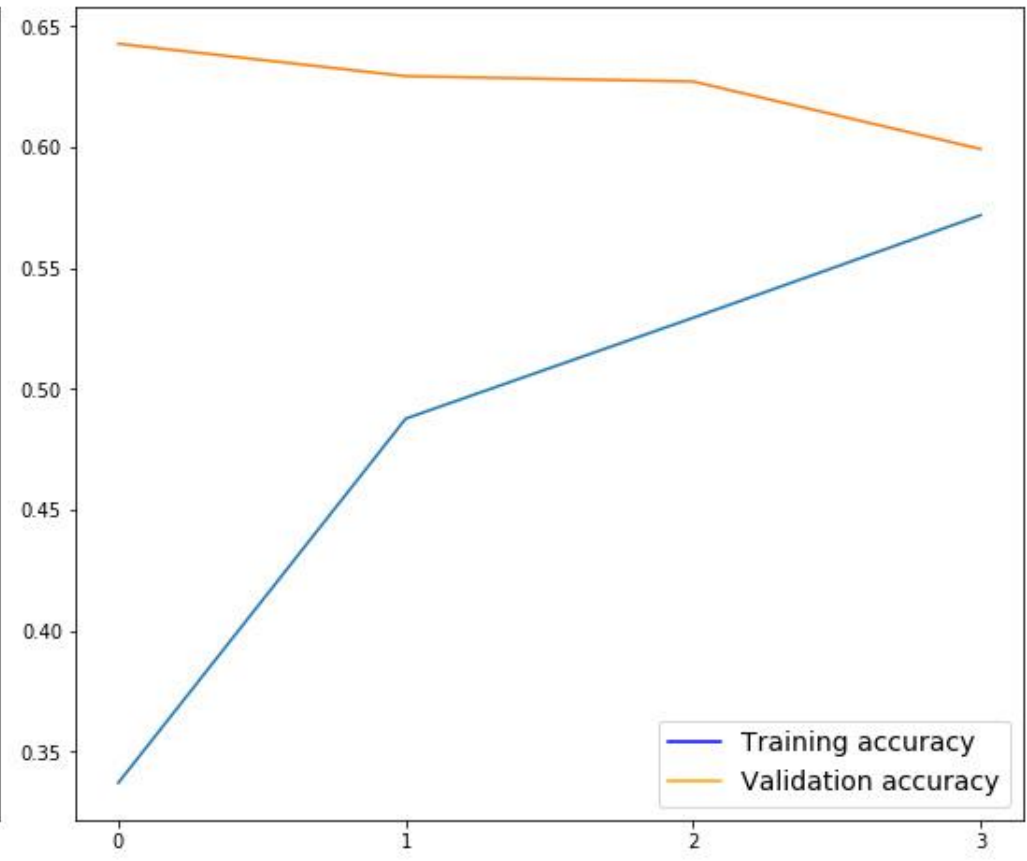
Source: Google AI Blog, <https://ai.googleblog.com/2016/08/improving-inception-and-image.html>

# Model evaluation

Training loss



Training and validation accuracy





# Model misclassification cases:

Predicted: airedale  
Actual: irish\_terrier



Predicted: standard\_schnauzer  
Actual: miniature\_schnauzer



Predicted: cardigan  
Actual: pembroke



Predicted: brittany\_spaniel  
Actual: welsh\_springer\_spaniel



Predicted: standard\_schnauzer  
Actual: irish\_terrier



Predicted: pug  
Actual: bull\_mastiff



Predicted: bernese\_mountain\_dog  
Actual: appenzeller



Predicted: doberman  
Actual: gordon\_setter



Predicted: irish\_wolfhound  
Actual: scottish\_deerhound



Predicted: airedale  
Actual: irish\_terrier



Predicted: standard\_schnauzer  
Actual: irish\_terrier



Predicted: irish\_wolfhound  
Actual: scottish\_deerhound



## Model misclassification cases:

1. Can only see head on the picture

Predicted: brittany\_spaniel  
Actual: welsh\_springer\_spaniel



Predicted: bernese\_mountain\_dog  
Actual: appenzeller



## Model misclassification cases:

1. Can only see head on the picture
2. Derivatives of the same breed



Predicted: cardigan  
Actual: pembroke



Predicted: pug  
Actual: bull\_mastiff



## Model misclassification cases:

1. Can only see head on the picture
2. Derivatives of the same breed
3. Breed's main difference is size