



# Is it a cat or is it a dog?

Garreth Cline



# **1. The Data**

# COCO

- Common Objects in Context.
- Mainly used for image processing - like OpenCV.
- I used the annotated descriptions of each image.
- 3610 Sentences.
- TfIdf





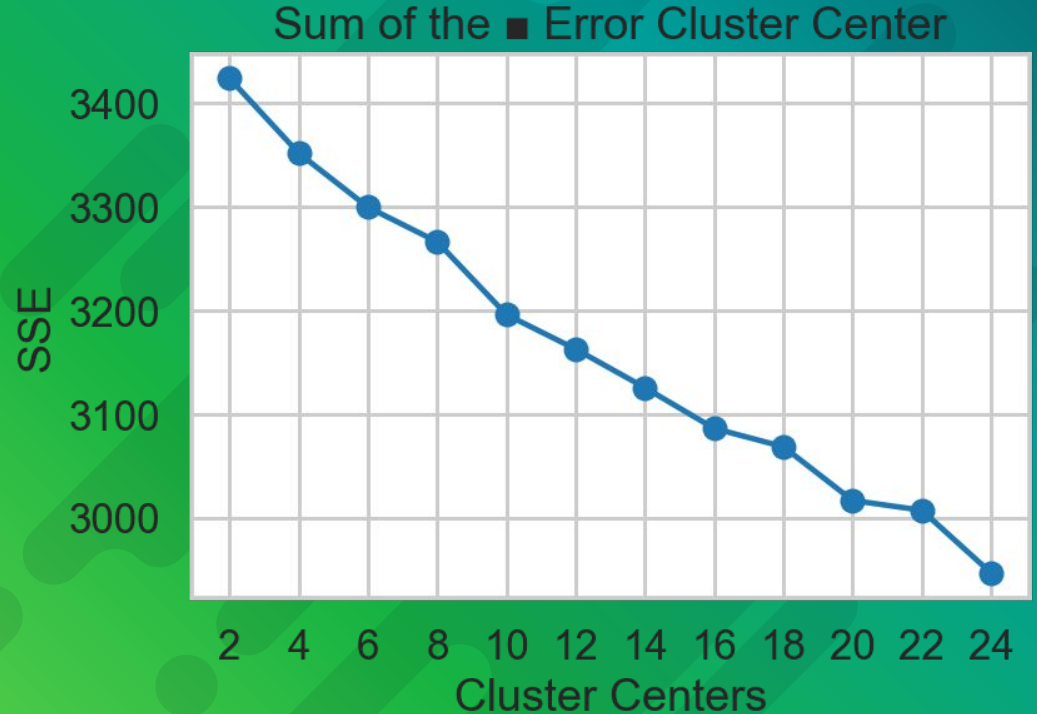






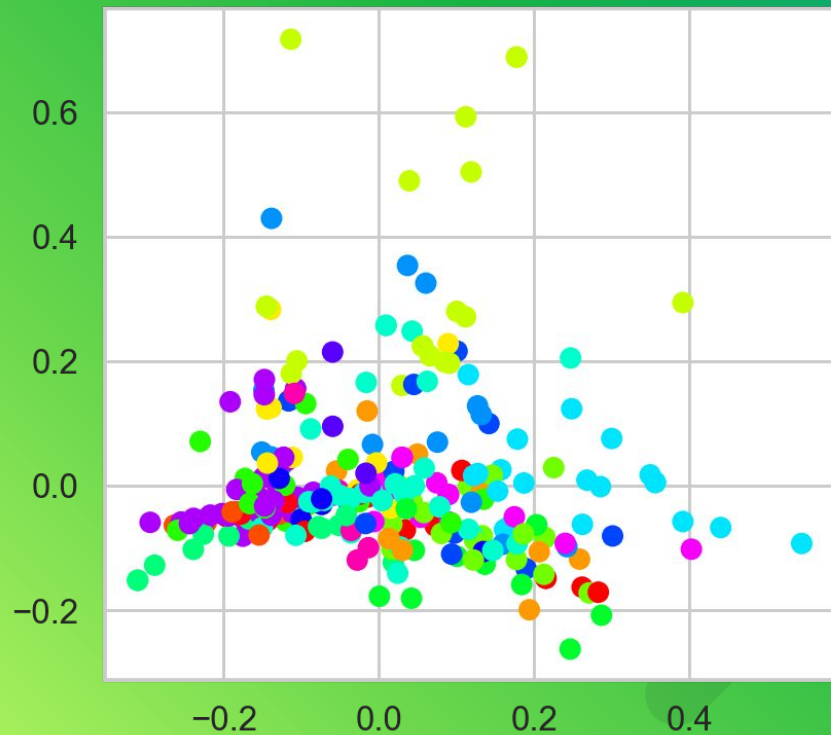
## Finding Cluster #

- Used SSE to figure out how many clusters I should try.
- Not much of a dip.

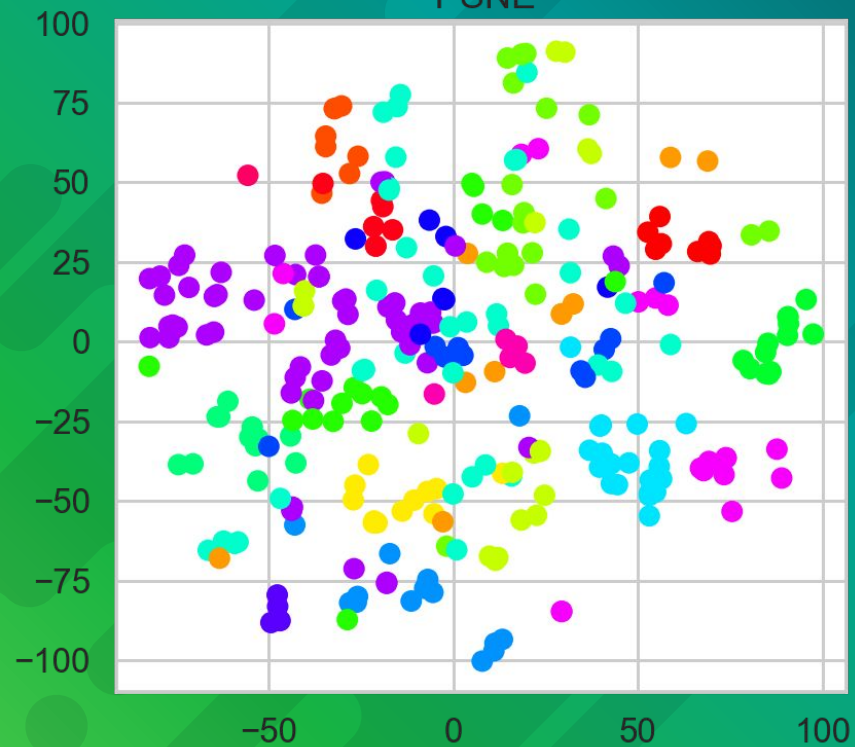




PCA



T-SNE



# Some Example Clusters

## One

Food, grey, strip, black,  
Paw, inside, control,  
Keyboard, close, toilet,  
Remote, seat, sink,  
Blanket, white, dog, top,  
cat, bed, lay

## Two

Horse, park, man, corner,  
bicycle, board, there, next,  
skate, background, lead,  
person, city, skateboard,  
build, map, people, bike  
,  
ride, street

## Three

Curl, object, metal, door,  
Bed, cake, blue, lay, slide,  
Cage, watch, glass, next,  
outside, plant, dog, cat,  
sit, bowl, table

# NMF of 2 Topic Words

## Cat

['cat', 'sit', 'laptop', 'look',  
'computer', 'top', 'front', 'table',  
'window', 'next', 'black', 'screen',  
'desk', 'chair', 'lay', 'television',  
'orange', 'outside', 'tv']

## Dog

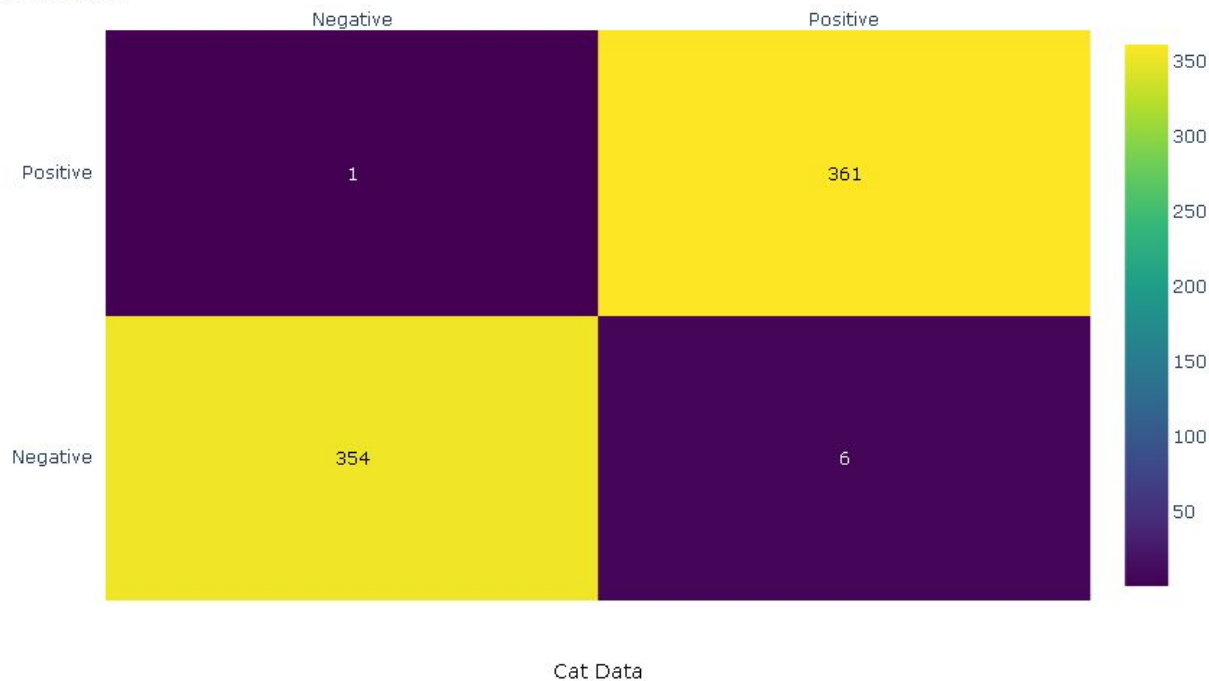
['dog', 'white', 'brown', 'lay',  
'small', 'black', 'bed', 'hat', 'wear',  
'couch', 'frisbee', 'man', 'stand',  
'grass', 'two', 'sleep', 'next',  
'blanket', 'play']

# Some Supervised Learning

- Used GridSearchCV
- Jacard Distance: 99.03
- Hamming Loss: 0.97

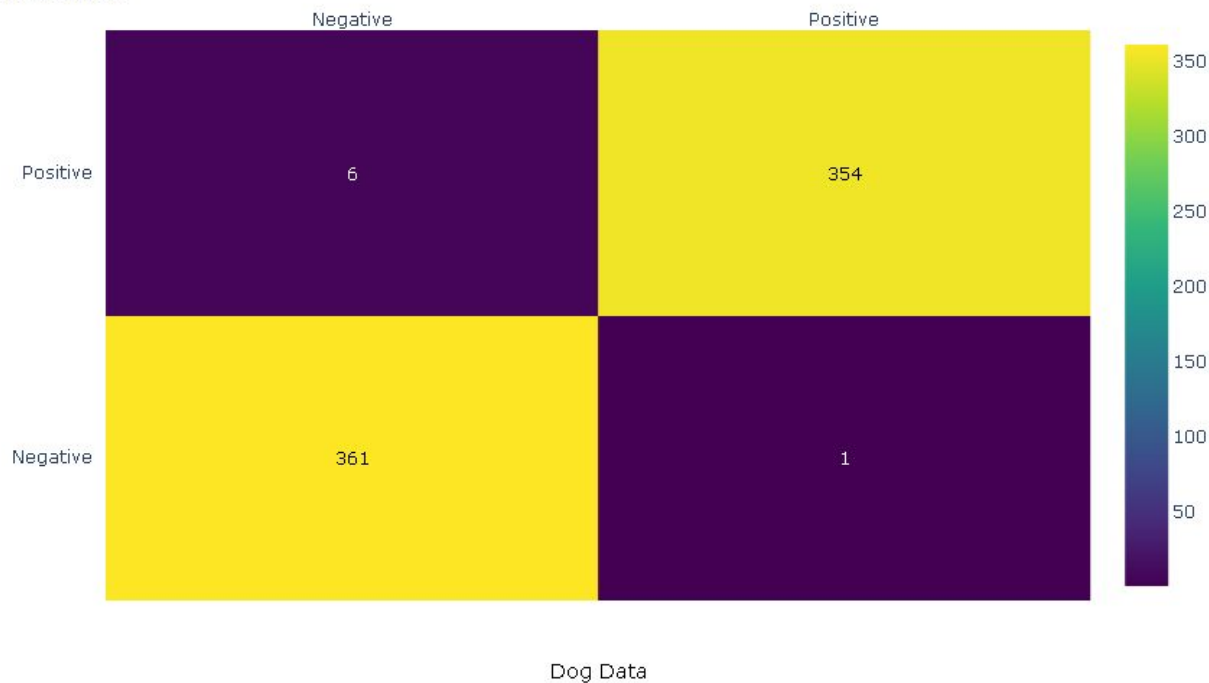
# Some Supervised Learning

*Confusion matrix*



# Some Supervised Learning

*Confusion matrix*





# What I want to do in the future

- Compare bigger sets in COCO
- Explore and address what to do with harsher words
- Is no emotion a good thing?



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