YOUTUBE CELEBRITY FACIAL RECOGNITION

ROBOGARDEN MACHINE LEARNING CAPSTONE PROJECT

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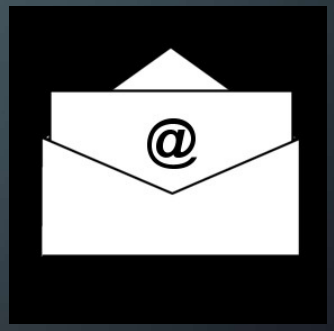
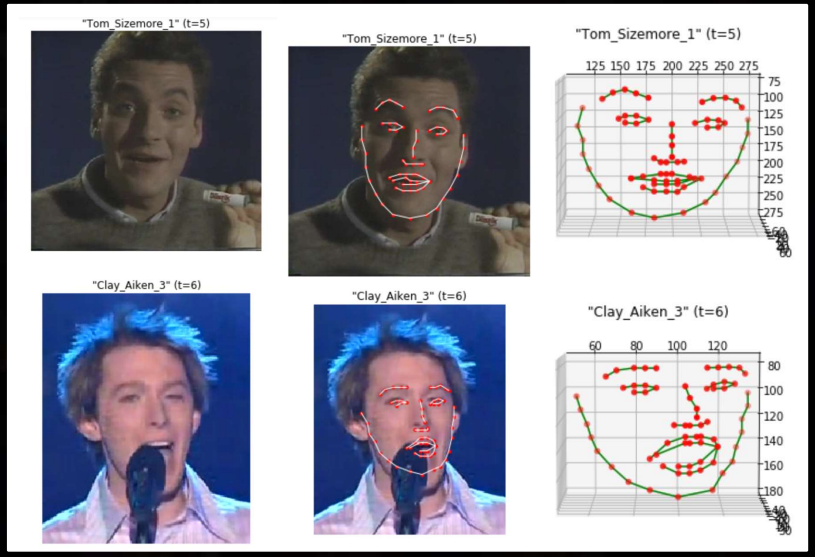
WHAT'S THE PROBLEM?

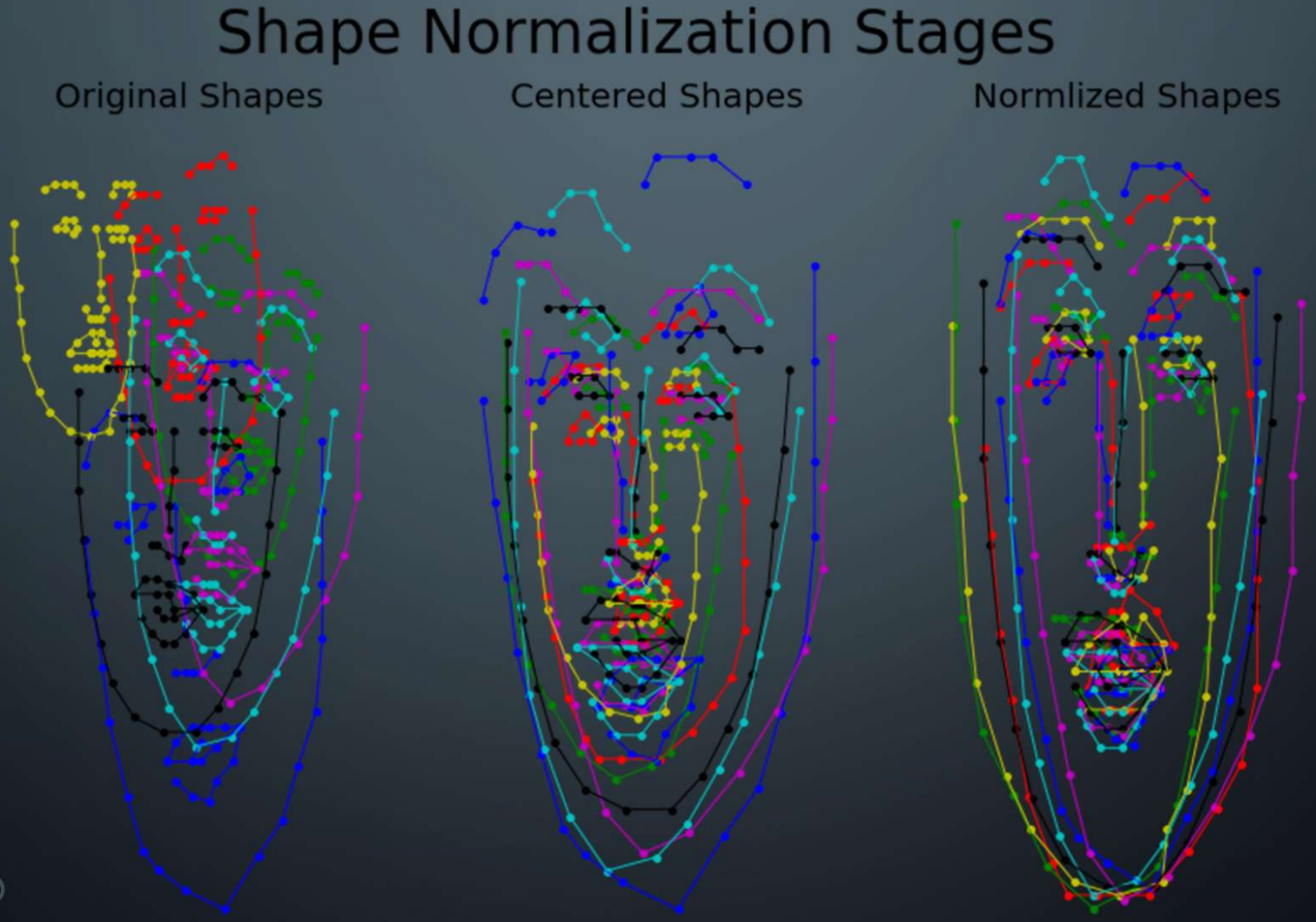


DATASET

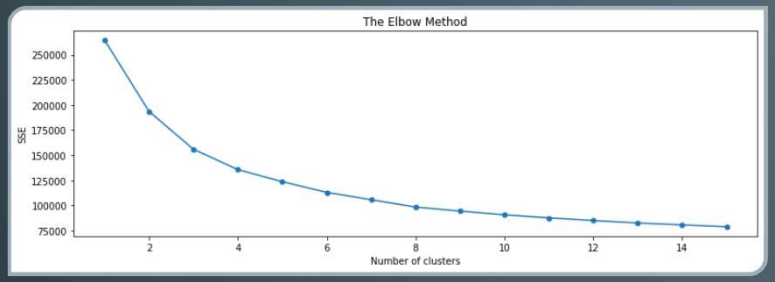
- Short clips of 374 unique people on YouTube
- Totaling 155,560 individual still frames
- Each frame contains:
  - .jpeg colours (the ‘photo’)
  - 2D landmark coordinates
  - 3D landmark coordinates

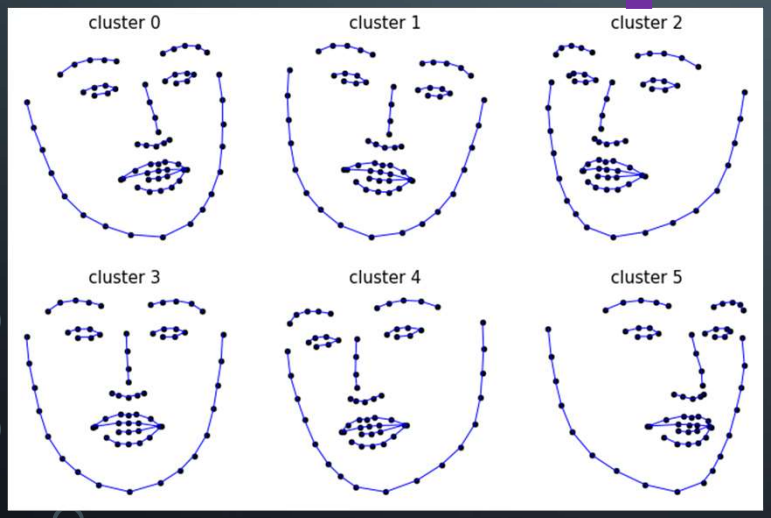


NORMALIZATION



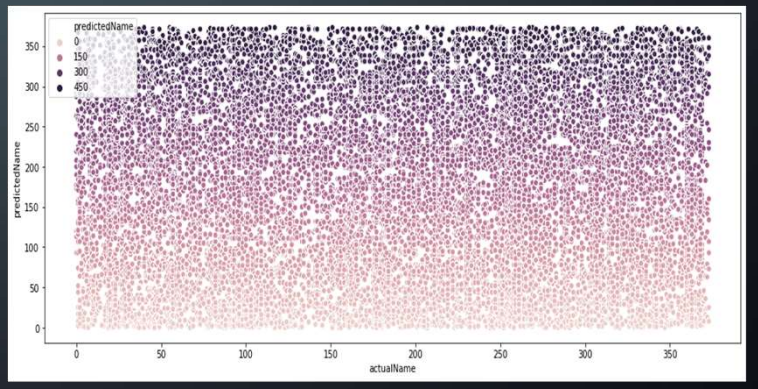
CLUSTERING





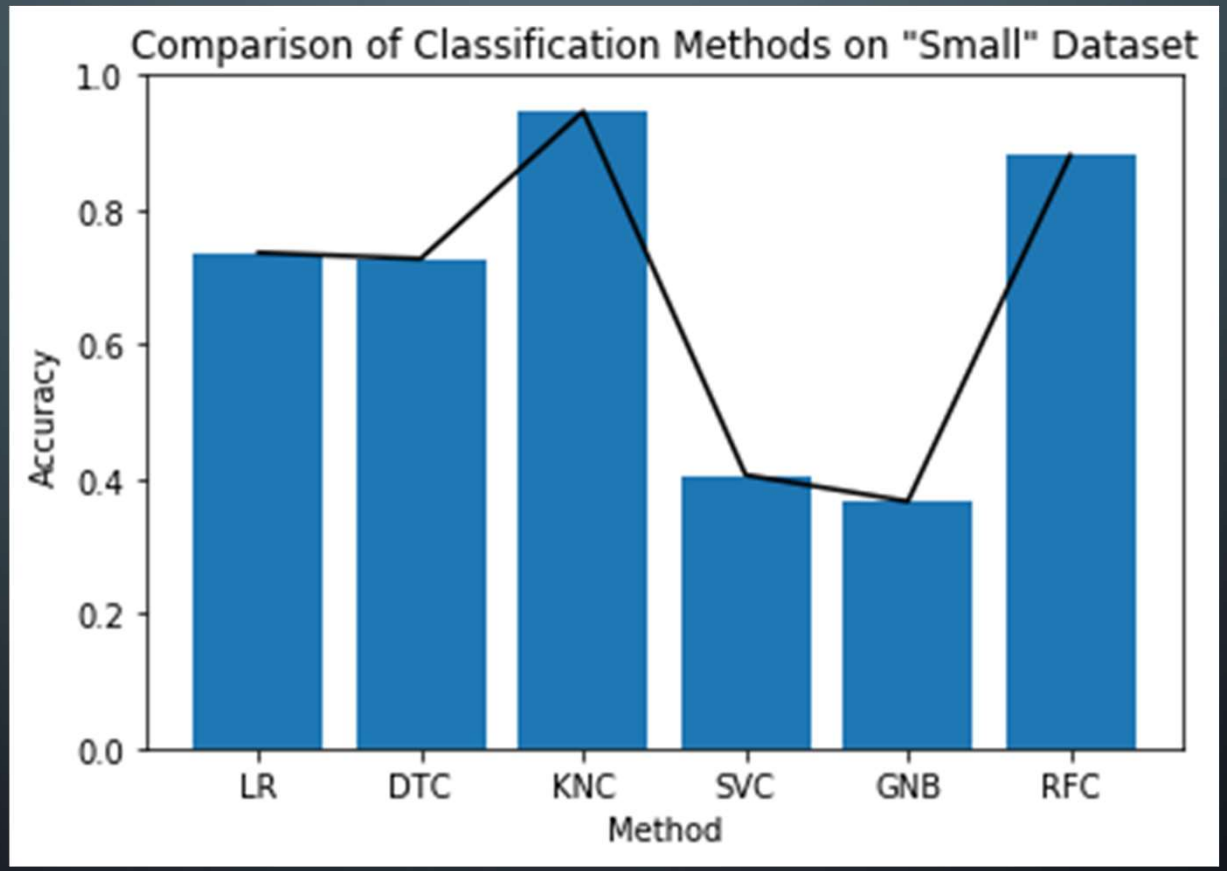
Look left!

Random Sample of Cluster #1



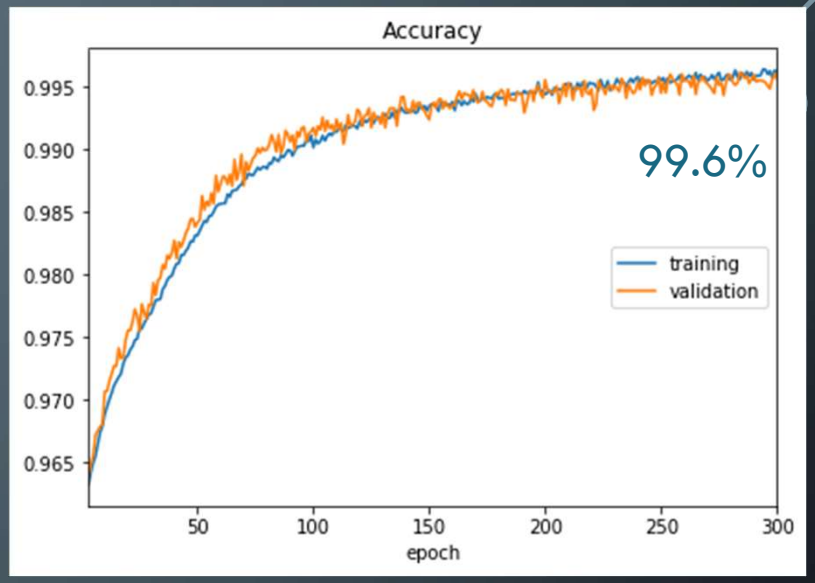
= 1-8 % Accuracy

CLASSIFICATION

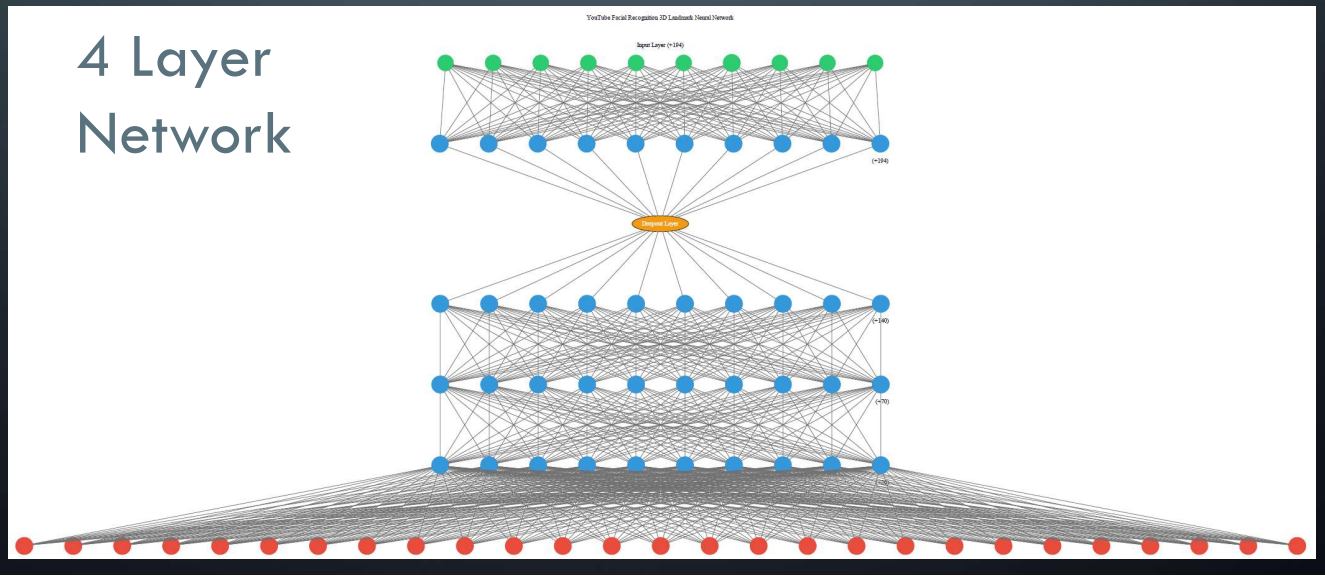


NEURAL NETWORKS

- Overfitting is well handled
- Model quickly reaches high accuracy

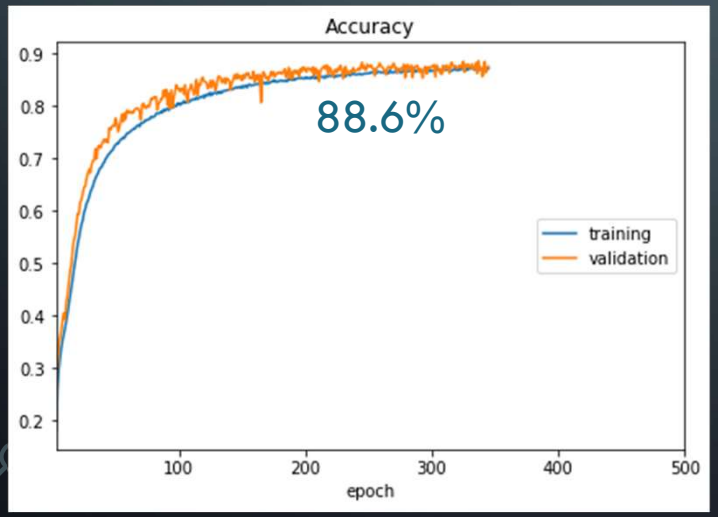


4 Layer Network

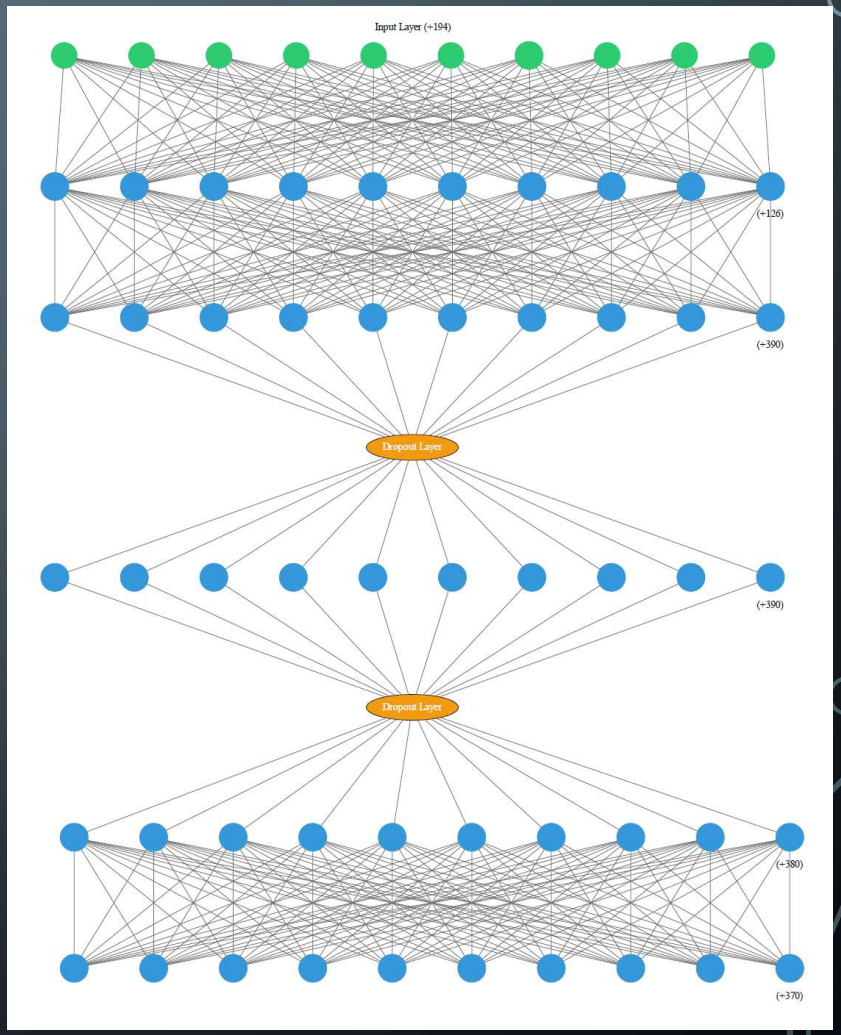


NEURAL NETWORKS

- Accuracy decreases as more people added
- 27 people had 99.7% accuracy in a similar network

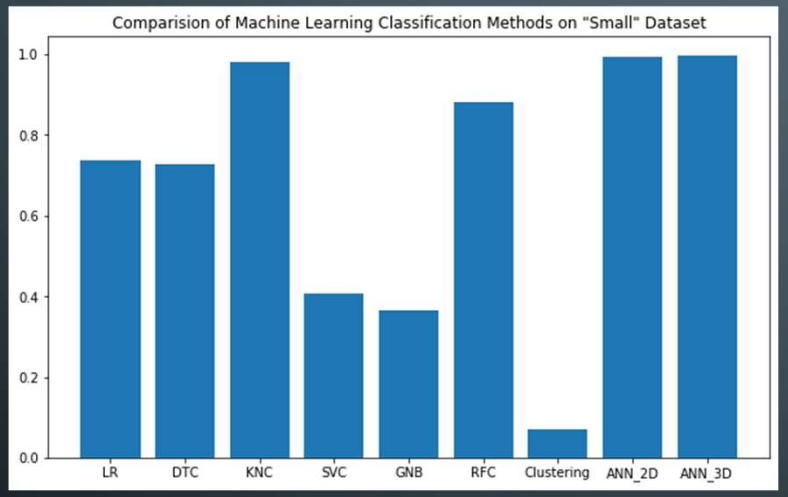


6 Layer Network

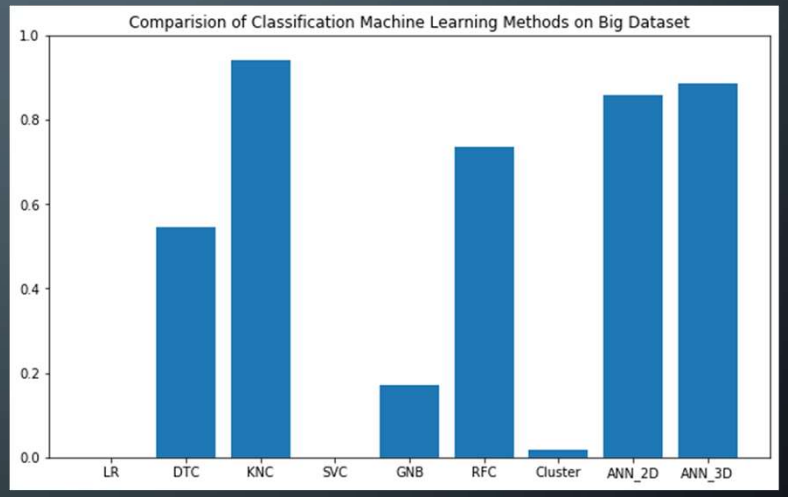


OVERALL COMPARISON

Small Dataset: 27 People



Big Dataset: 374 People



Neural networks out-perform for this dataset

But KNN is worth looking into further

CONCLUSIONS

- Using a landmarking algorithm and machine learning can predict a person from a list with relatively good accuracy
- An app built to notify a client when their photo is uploaded is possible, BUT would require inputting more than one image to retrain for this model
  - A couple short videos spanning multiple angles could work!
- Recommend a ‘confirm’ button before notification
  - Could lead to a reinforcement learning model in the future!