CAR IDENTIFICATION

The traditional vehicle identification system relies on manual human observation or plate number recognition

It is laborious and time-consuming task for a human to monitor every vehicle on screen

Can be automated by leveraging the machine learning

DATA

8218 images of 100 classes of cars

METHODOLOGY

- Data acquisition

  kaggle.com

METHODOLOGY

- Data acquisition

   kaggle.com

- Preliminary analysis and image preprocessing

METHODOLOGY

- Data acquisition

  kaggle.com

- Preliminary analysis and image preprocessing

- Baseline model (CNN)

METHODOLOGY

- Data acquisition

   kaggle.com

- Preliminary analysis and image preprocessing

- Baseline model (CNN)

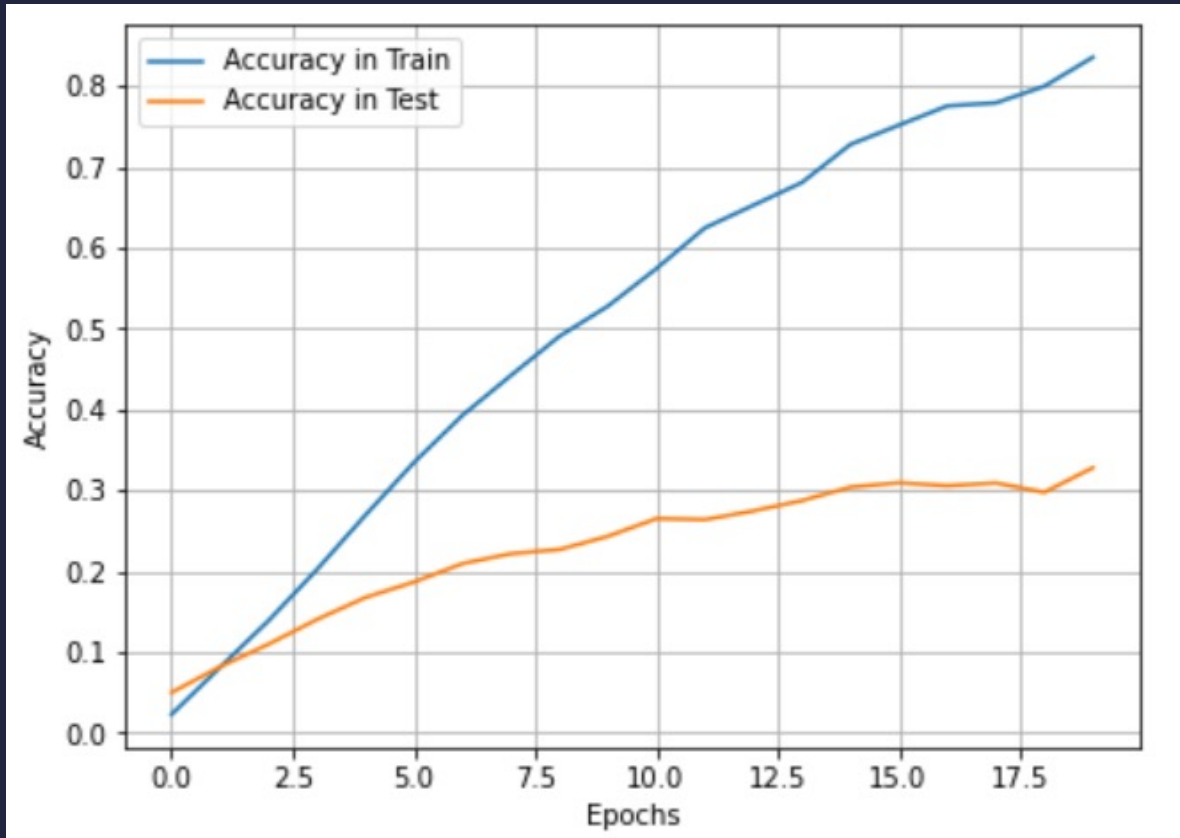- Transfer learning applied (InceptionV3)

METHODOLOGY

- Data acquisition

   kaggle.com

- Preliminary analysis and image preprocessing

- Baseline model (CNN)

- Transfer learning applied (InceptionV3)

- Final model tuning

BASELINE MODEL

- CNN model

- Input layer

- 3 convolutional layers with max pooling

- 2 fully connected dense layers

- Accuracy – 0.3

MODEL TUNING

InceptionV3 with pretrained imagenet weights

PREDICTS MAKE OF THE CAR CORRECTLY

Actual : ['Chevrolet Silverado 1500 Hybrid Crew Cab 2012'] | Predicted : Chevrolet Avalanche Crew Cab 2012

PREDICTS MAKE OF THE CAR CORRECTLY

Actual : ['Audi 100 Sedan 1994'] | Predicted : Audi TT RS Coupe 2012

PREDICTS MAKE OF THE CAR CORRECTLY

Actual : ['Dodge Dakota Crew Cab 2010'] | Predicted : Dodge Sprinter Cargo Van 2009

FUTURE WORK

- More data (good quality images, more images)

- More computing power

- Apply different transfer learning algorithms

Thank you