

Traffic-Accident-Detection-via-Deep-Learning

INTRODUCTION:

Each year approximately 1.25 million people die as a result of traffic accidents. An additional 20 million to 50 million people suffer non-fatal injuries and many become disabled as a result. Traffic injuries cause great economic losses to individuals, their families and entire nations. In this project, we will use deep learning models that sends an alert to the nearest police station through street cameras. So, we will experiment the most suitable model for our situation and in traffic accidents detection.

DATA DESCRIPTION:

This dataset was created to detect accidents in real-time from cctv footage. It contains frames captured from Youtube Videos involving accidents. Dataset is split into 3 folders - train, test and val. Each folder has Accident and Non Accident folders. Consecutive frames of an accident are included in the dataset so the model can learn to differentiate between an accident and non accident. the source from: <https://www.kaggle.com/ckay16/accident-detection-from-cctv-footage>

We also used data to determine the cause of the accident, such as being busy with the mobile, looking back, or talking to the passenger, It is made up of 10 classes, The data is divided into two train and test, and its source is from

<https://www.kaggle.com/mikoaro/distracteddriver>

TOOLS:

Technologies:

- Python
- Jupyter Notebook

Libraries:

- Pandas
- Numpy
- Matplotlib
- Seaborn
- SKlearn
- keras
- Tensorflow

ALGORITHMS:

- Read the dataset
- Prepare Images for Modeling
- Increase the TrainSet Bu Using Data Augmentation (rotation, Width shift, height shift, brightness, shear, zoom, horizontal flip)
- Build Simple Neural Network Model - NN
- Try adding more layers to NN
- Build Second Neural Network Model - Convolutional Neural Networks (CNN)
- Model Transfer Learning
- Using The Best Model