**Deep Learning Assignment Two**

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**Task handling:**

**Part1:**

**Task:**

Transfer Learning, Convolutions, and Object Localization in Keras. For this the assignment is named as vehicle detection. Where the aim is to detect two class Car and Bike. Furthermore, showing all the results and outcome.

**Data Overview:**

. Data set name:

* Bike . *Approximate 500+ images of different shape size and colors*
* *Car* . *Approximate 500+ images of different shape size and colors*

. Target Variable: *Type of Vehicle* Bike or a Car

**Data Collection and cleaning:**

Data Preparation and cleaning is must in term to achieve the great result out of the data. Untreated dataset can lead to misclassification. Below are the steps used in the data preparation.

* 2 plugins are used for google chrome browser to download images, named “image downloader” and “imageye”
* Some images are also downloaded from “tugraz”, [link given in references]
* Images are separated in 2 folders Bike and Car.
* Images are named and cleaned with the help of python script, and some images are cleaned manually.
* Both the data set are non-trivial and can not be identified only on the color bases.
* Images have varied background and are full-scale real-world images and not machine generated.

**Test Train data split:**

As we are requiring the train, test and validate the model. We need to split the data.

Train = 60%, Test = 20%, Validation = 20%

**Data visualization:**

The sample images below give a look of data.

**Bike**:

A picture containing bicycle, outdoor, transport, wheel

Description automatically generated A bicycle leaning against a wall

Description automatically generated with medium confidence

**Car:**

A red car on a road

Description automatically generated with low confidence A green car on a road

Description automatically generated with medium confidence