# Machine Learning Techniques Project Proposal

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## 1 Introduction

The project involves taking an input video and then classifying them into moving and not-moving frames. The moving frame is the region of interest for us. An idea could be to build a background model of the current frames in video to get the stationary background and subtract it from the whole frame to get the non-background data. Motion detection to detect moving objects from a stationary background involves background subtraction algorithm.

## 2 Proposed Work

The whole project will be divided down into the following phases:

### 2.1 Phase 1

In phase 1, we will try to subtract the foreground from the background by trying out various algorithms like **optical flow, frame differencing** and **background subtraction** . We will compare the accuracy rate and computation of each algorithm to choose the best. Also, we will try to discover new algorithm for separation of foreground images from background images in real time.

### 2.2 Phase 2

In phase 2, we will attempt to **classify different objects in each frame into pedestrians, vehicles etc.** and label them using machine learning techniques.

## 2.3 Phase 3(If possible)

Phase 3 will be further refinement of phase 2 by **classifying each vehicle into 2/3/4 wheeler** from the set of vehicles identified.

## 2.4 Phase 4(If possible)

In phase 4, we aim for **classification of pedestrians through facial recognition**. We will be trying out the following ideas:

- Detecting each pedestrian and giving them a label
- (If possible)Determining frequency of visits for an old pedestrian
- (If possible)Distinction of a new pedestrian from an old pedestrian.