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Throughout these past two weeks, I have focused on being able to detect whether a crash occurred in a dash camera video. To do this, I have created a naive crash detection algorithm that observes car's movements in-between frames and when a sudden change happens in this movement, I label the video as a crash. Specifically, I am keeping track of the change in the car's position between consecutive frames. Then, I will compare these consecutive changes and if the ratio of the change in the car's position between three consecutive frames is below a certain threshold, I would consider that video to contain a crash. To clarify, an extremely low ratio would imply that the car had a significant decrease in its velocity which is representative of a car crash. Although a significant decrease in velocity is also present when a driver hits the brakes, I claim that the type of velocity reduction that occurs during a car crash is much different and is something I can distinguish with a threshold.

I am currently facing a few setbacks that are preventing me from being able to use this algorithm on all of the videos in my dataset. Firstly, I am unable to consistently detect cars within videos. For example, if I detect a car in one frame of a video, it's not guaranteed that the same car will be detected again in the next frame. This is preventing me from tracking cars for the entirety of the video which inhibits my car crash detection ability. Similar to this, my algorithm doesn't consistently detect all of the cars within the frame. As a result, sometimes the car that is involved in the crash is not detected. In order to resolve these problems, I have experimented with changing the brightness level and resolution of the video. The following images represent an example of a change in the car detection ability due to differences in the brightness. It is evident that increasing the brightness might not be the best approach as fewer cars are being detected. In the coming weeks, I hope to improve my car detection ability so that I can comprehensively test my algorithm on a larger set of videos.

No Change

150% Increase in Brightness

200% Increase in Brightness