Traffic Light Recognition With Tensorbox and Pixel Classifier

Updated 142 Days Ago All Users

Actions

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Subscribers *None*

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Recognition with Pixel Classifier

Detection with Tensorbox

Multi-class Tensorbox produces boxes for car, pedestrain, cycles and traffic lights.

Classify within detected Zones

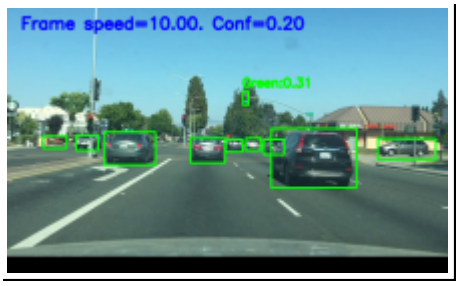
if a traffic light is detected, we call YCbCr classifier to classify its type.

Problems

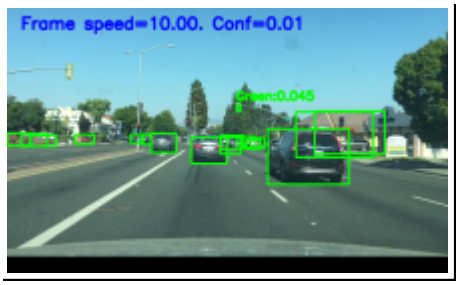
Only colors (red, yellow, green) are recognized, as restricted by YCbCr classifier .

Why Tensorbox detects Traffic Lights only when the car almost approch the stop line?

1. Traffic lights should have a different confidence threshold



When conf= 0.2, the green light was first detected as a traffic light in 874 frame in clip.mp4.



When conf= 0.01, the green light was first detected as a traffic light in 915 frame in clip.mp4.

Thus, use a specific (lower) confidence threshold for traffic light would improve TLs detection.

2. In ground truths, most Traffic lights are smaller than 5 pixels because of filtering

During labeling process, labelers are asked to skip TLs which are hard to recognize.
When training, annotations smaller than 5 pixels are filtered out (Only 263 TL labels in 16000 are smaller than 5 piexls) .
In the above conf=0.01 case, the green light is only 4~5 pixels wide, which demenstrates that Tensorbox will not produces boxes smaller than 5 pixels.