

A Risky Coexistence: Examining the Challenges Faced by Autonomous Vehicles and Motorcycles

Research of the Enhancing Self-Driving Car Performance: The Potential Dangers of Autonomous Vehicles and Motorcycles

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Abstract

Introduction

Main Objectives

1. Understanding of what dangers exist with AVs.
2. Establishing the appropriate datasets to train and test the models.
3. Pre-processing any datasets to improve the training progress.
4. Evaluation of the test results to see specific information about where AVs may fail.

Materials and Methods

Materials and Methods — Training

With being faced with the challenge of setting up a high-end model equivalent to a leading AV manufacturer, similarly to Tesla, then it is very important to use quality Object Classification training material. Using the Qualitative Research method, finding the

Materials and Methods — Testing

Testing materials must include video content, split into multiple frames To test the trained YOLO model, with enough images to create a strong argument. Joining a motorcycle group and exploring various routes across the United Kingdom, including motorways, dual carriageways, A-roads, and backroads, with motorcycles overtaking, filtering, and navigating blindspots, can lead to unexplored scenarios and questions that may have been previously overlooked.

A decided factor is to use a Drift Innovation Ghost XL motorcycle camera attached to a motorcycle that rides within the group, then swap the camera with another rider after some time. This way, when combining the content helps with identifying how Object Classification copes with numerous blindspots and draw some questions to further the research concerning the current safety of AV vehicles.

Two sports bikes and two cruisers are selected for material to test how Object Classification models handle different motorcycle styles. Ideal footage would include Scramblers, Trikes and other similar

vehicles to establish how Object Classification models work in an estimated manner. A perfect material would be that during the ride out, conducted on 18th July 2023, Tuesday, would capture these vehicles, which either pass by or join us in sections of the rides. The group is instructed to overtake and be undertaken by the camera vehicle to create plenty of footage to put the YOLO model to the test. However, it is worth noting that no rider is pressured into doing anything illegal or unsafe.

Results

Conclusions

Forthcoming Research

References

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