Project Title

Lane Detection for Automated Driving, a Reference Perception System.

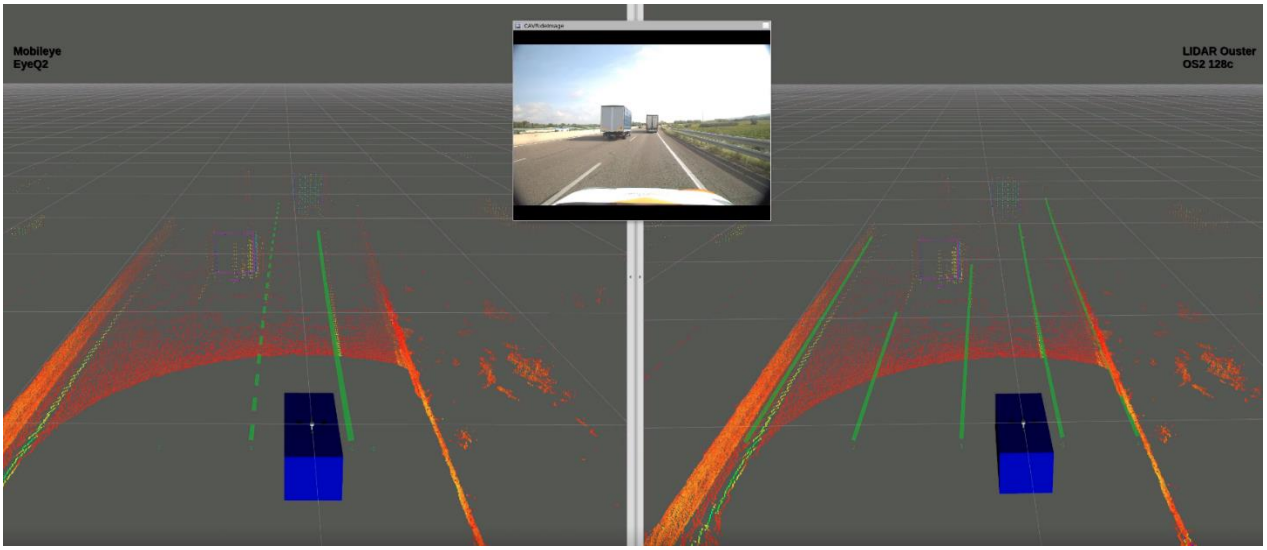
Project Abstract (max. 400 characters)

Development of real-time algorithms for lane detection from images in the CULane dataset. In the first stage, the student will review the state of the art, and we will define the methodology to improve the state of the art during the second stage of the project. This is a paid project, and the results of the project could be published. Working from home is possible except for one day per week.

Extended Abstract

Development of real-time algorithms for lane detection from images in the CULane dataset (https://xingangpan.github.io/projects/CULane.html , https://arxiv.org/abs/1712.06080). In the first stage, the student will review the state of the art (https://paperswithcode.com/sota/lane-detection-on-culane) and we will define the methodology to improve the state of the art in real-time lane detection during the second stage of the project. This is a paid project, and the results of the project could be published.

The student will be working closely with the perception team in the Automated Vehicle group of the Electronics department. He will be able to use a server with 2 Nvidia Titan X GPUs to train the models as well as a company laptop. And the system could be integrated in the CAVRide, our prototype for development of automated driving functions (https://www.youtube.com/watch?v=W7YtNiN0bT8). The Electronics department is located at IDIADA HQ in Santa Oliva, the student is expected to work at the IDIADA HQ office at least one day per week, the rest of days the student can choose to work from home or come to the office. After completing the master's thesis, we could potentially offer a job to the student.



Example lane detections from a camera with integrated detections from Mobileye on the left, and from our algorithm detecting lanes from the point cloud. An image is also shown as reference.

About IDIADA Automotive Technology, S.A.

IDIADA Automotive Technology, S.A., as a global partner to the automotive industry, provides complete solutions for automotive development projects worldwide. The core services IDIADA provides are Engineering, Proving Ground and Homologation. Main fields of engineering activity are vehicle dynamics, electronics, fatigue & durability and passive safety power train, emissions, noise & vibration.

As technical advisors of the Spanish Approval Authority, IDIADA is member of the WP29 working Groups in Geneva (United Nations) and EU where vehicle regulations are created and developed (or interpreted). IDIADA has experience in defining systematic methodology that unifies the criteria for evaluating and validating active safety systems. The execution of these methodologies together with IDIADA's proving ground, give true potential to the development the testing and improvement of systems and prototypes.

IDIADA develops a major role under the frame of Euro NCAP, representing the Catalan Government in the Board of Directors and being the only laboratory fully accredited for executing all tests under the safety programme. Furthermore, the company, holds the representation of the Spanish Government in several bodies dealing with automotive research and regulation, such as EEVC (European Enhanced Vehicle-safety Committee) and UN ECE (United Nations Economic Commission for Europe) Working Groups.

In the same way, IDIADA is member of several working groups where safety standards are developed (GRSP, ISO), thus permitting the acquisition of a complete view in the field of safety.

More information: https://www.applusidiada.com/global/en/