FORMULA ELECTRIC BELGIUM

Developing a LiDAR Machine Learning network for cone detection

OUR PROJECT

Formula Electric Belgium is a student-run electric race team which competes in Formula Student, the world's largest competition for engineering students. We aim to push the limits of performance, innovation and sustainability within electric racing every year, which is only possible with the help of our Thesis students. These pioneers are responsible for performance-defining innovations within the team, and we would love for you to join our team of highly ambitious and motivated engineers. As a Thesis student, you will research, design, prototype and test your innovations alongside the full-time members which make sure the team pushes itself and the car to new heights.

AIM AND OBJECTIVE

The racetrack for our driverless car consists of different types of cones that have to consistently be detected by our LiDAR. Rule-based cone detection has strong disadvantages and machine learning could prove to be more accurate with differentiating cones and non-cones, as well as distinguish types

The objective is to build a neural network capable of processing our LiDAR scans to find the location and type of the cones that are placed around the track. It is important to find a healthy balance between efficiency and inference time to select the model used for our system.

The driverless system is mainly written in C++ and heavily relies on ROS (Robot Operating System), but the thesis itself can be implemented in python or a different preferred environment.

The goal is to try to beat the accuracy of position and colour estimation of our rule-based approach

PROFILE

- Experience C/C++
- Experience with Machine Learning
- Willingness to learn new technologies
- Experience with LiDAR is a nice bonus
- Experience with ROS is a nice bonus

RETURNS

- Practical experience in a high-end engineering context
- Work with the newest technologies and innovative companies
- Developing your hard- and soft-skills in a company -like environment
- Participation in the biggest student competition in the world

INTERESTED?

Send us your contact details and field of interest to

recruitment@formulaelectric.be