Faculty of Engineering
Summer Research Program 2022-2023

Project Title: Harnessing Hardware-in-the-Loop Autonomous Driving System

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Objective

The goal of this project is to harness sensor data observed from a Hardware-in-the-Loop (HiL) system driving the autonomous vehicle (AV) managed by our Monash team. Students are expected to leverage their knowledge and experiences in deep learning, software engineering and/or electrical background to drive the project's success.

Project Details

The successful student will join a world-class Intelligent Transportation System team and have an opportunity to interact closely with multidisciplinary researchers across intelligent transport, artificial intelligence (AI), and software testing. Expected tasks are:

- Conduct field test with the AV (StreetDrone) to collect data, assess their quality and develop a pipeline/framework for continuous processing of HiL-AV data
- Harness existing deep learning algorithms and/or tools (e.g., VISTA 2.0 [1], Label Tool [2]) to postprocess perception, localization and control data recorded from the AV, including but not limited to annotation/labelling of photo and point cloud data.
- Write a detail technical manual (and if possible, a conference paper) to summarize the project findings.

Prerequisites

- Good proficiency in Python, Git, Unix/Linux – essential
- Experience in algorithms, deep learning and/or self-driving car – preferrable

Additional Information

- Applicants may be required to attend an interview.
- Related paper and work
    1. https://arxiv.org/abs/2111.12083
    2. https://github.com/autonomousvision/kitti360LabelTool

Submit as a word document - no more than one page long.