AUTONOMOUS CARS USING SIMULATION

CARLA, which is an open-source autonomous driving environment that also comes with a Python API to interact with it.

The main idea of Carla is to have the environment (server) and then agents (clients). This server/client architecture means that we can of course run both the server and client locally on the same machines, but we could also run the environement (server) on one machine and multiple clients on multiple other machines

With Carla, we get a car, an environment to drive that car in, and then we have a bunch of sensors that we can place upon the car to emulate real-life self-driving car sensors. Things like LIDAR, cameras, accelerometers, and so on.

CARLA has been developed from the ground up to support development, training, and validation of autonomous driving systems. In addition to open-source code and protocols, CARLA provides open digital assets (urban layouts, buildings, vehicles) that were created for this purpose and can be used freely. The simulation platform supports flexible specification of sensor suites, environmental conditions, full control of all static and dynamic actors, maps generation and much more.

* **Scalability via a server multi-client architecture**: multiple clients in the same or in different nodes can control different actors.
* **Flexible API**: CARLA exposes a powerful API that allows users to control all aspects related to the simulation, including traffic generation, pedestrian behaviors, weathers, sensors, and much more.
* **Autonomous Driving sensor suite**: users can configure diverse sensor suites including LIDARs, multiple cameras, depth sensors and GPS among others.
* **Fast simulation for planning and control**: this mode disables rendering to offer a fast execution of traffic simulation and road behaviors for which graphics are not required.
* **Maps generation**: users can easily create their own maps following the [OpenDrive](http://www.opendrive.org/) standard via tools like [RoadRunner](https://www.vectorzero.io/).
* **Traffic scenarios simulation**: our engine [ScenarioRunner](https://github.com/carla-simulator/scenario_runner) allows users to define and execute different traffic situations based on modular behaviors.
* **ROS integration**: CARLA is provided with integration with [ROS](http://www.ros.org/) via our [ROS-bridge](https://github.com/carla-simulator/ros-bridge)
* **Autonomous Driving baselines**: we provide Autonomous Driving baselines as runnable agents in CARLA, including an [AutoWare](https://github.com/carla-simulator/carla-autoware) agent and a [Conditional Imitation Learning](https://github.com/felipecode/coiltraine) agent.