

CADi

ROS as a Development Platform

CARLA 101

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What is CARLA?

- CARLA (Car Learning to Act) is an open simulator for urban driving.
- Ideal for autonomous driving models, it supports:
 - Training
 - Prototyping
 - Validation



Founding sponsor



Sponsors



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Installation

- Prebuilt and source binaries are available.
- Minimum requirements:
 - A 4GB minimum GPU will be needed to run a highly realistic environment. A dedicated GPU is highly advised for machine learning.
 - Any 64-bits OS should run CARLA.
 - Python for a dedicated API with [Pygame](#) to create graphics and [Numpy](#) for great calculus.
- After installation, CARLA can be run from the terminal / command prompt.

```
# Linux:  
> ./CarlaUE4.sh  
# Windows:  
> CarlaUE4.exe
```

Execution Variants

- CARLA runs on the Unreal Engine with the Vulkan API, which sometimes results unstable in Linux systems. Thus, it can be run with OpenGL using

```
./CarlaUE4.sh -opengl
```

- Graphics quality can be tweaked using the option

```
-quality-level={Low,Epic}
```

- Windowed mode & resolution options

```
-windowed  
-ResX=<width_size_in_pixels> -ResY=<height_size_in_pixels>
```

- Synchronous mode:

```
-fps=<number>
```

Python API

- The Python API gives the ability of interacting with several layers of CARLA:
 - Spawning actors
 - Changing the weather
 - Changing the physics of the ego vehicle
 - Acquiring sensors

Environment Examples

Clear day



Daytime rain



Clear sunset



Daytime shortly after rain

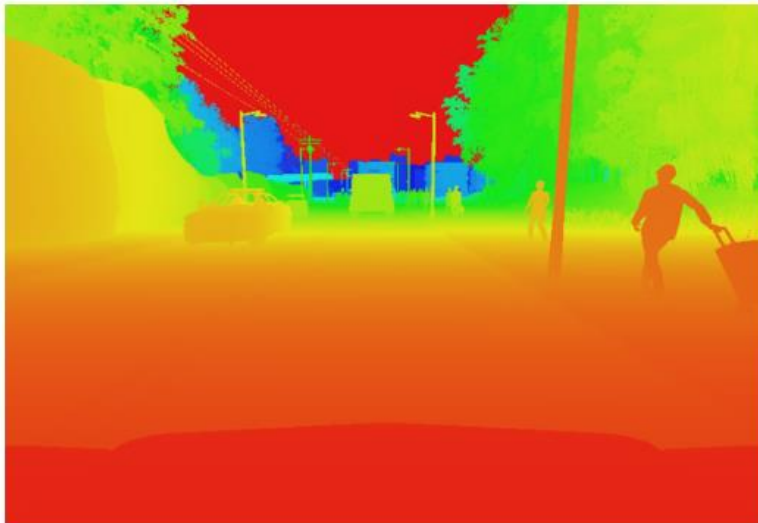


Vision Sensor Examples

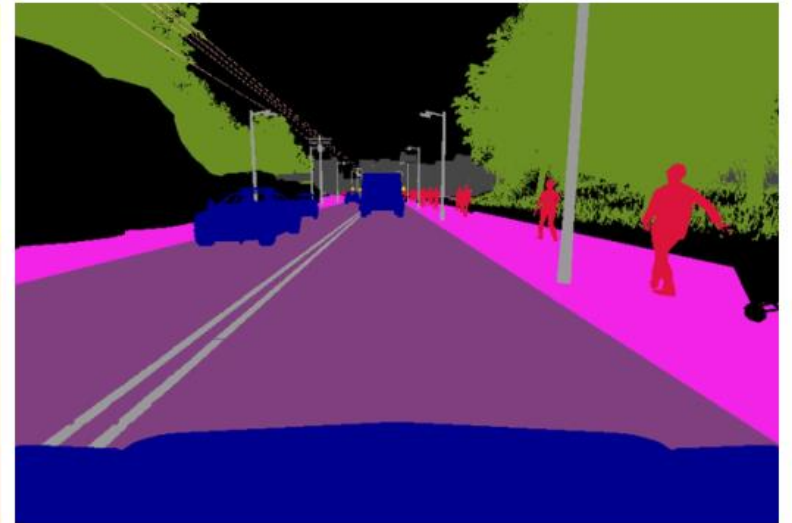
Normal vision



Depth



Semantic segmentation



Potential of the Python API

