Bringing semantic segmentation to DuckieTown

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15.04.2019

Introduction

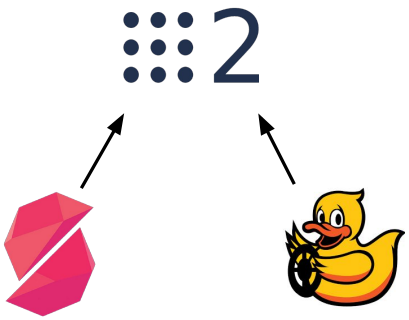
What is semantic segmentation

Problem statement

Get the accurate neural network for semantic segmentation for real DuckieTown, using only simulator.

Environment description

- Duckietown enviroment
- LGSVL Simulator
- ROS2



Significance of Research

- Hands-on Deep Learning research
- Algorithms and techniques that are actually used in self-driving vehicles
- Possible contribution to ROS2 platform, which is currently under heavy-development

Proposed solution

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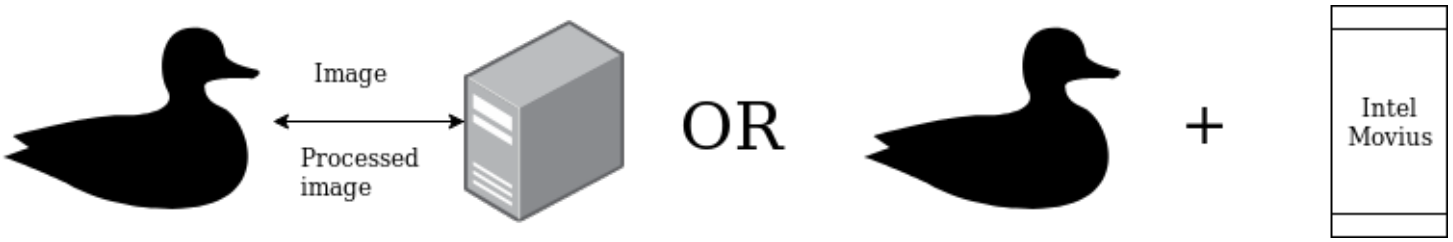
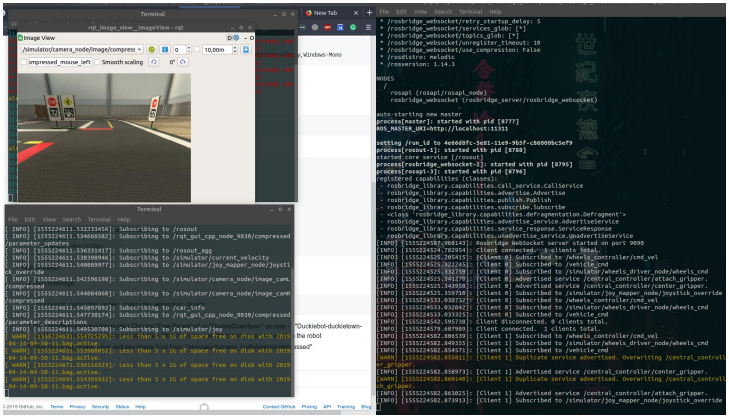
Possible SW architecture



Done and todo's

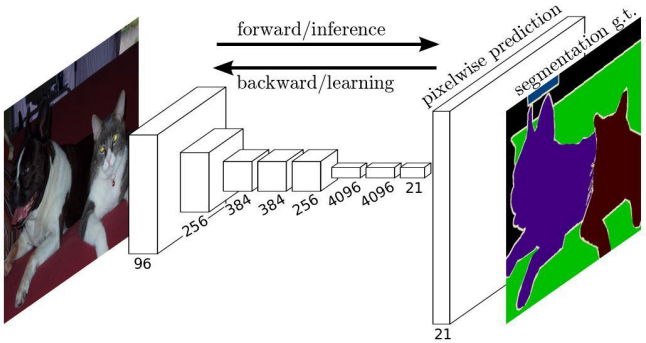
Done:

- Run the simulator
- Collect usual ros-bag data



To do:

- Choose the best network model
- Collect labeled data
- Train and deploy the network



Conclusion

Make DuckieTown great again!