CSC2515 Project Proposal

Autonomous Driving: Road-Estimation

Jacob Lambert* (1001319842)
Rikky Duivenvoorden† (997455329)

1 Project Overview

2 Dataset

The data used in this project is provided by the KITTI Vision Benchmarking Suite[1] which is widely used in robotics for testing machine learning algorithms. The Road/Lane Detection Evaluation (2013) dataset contains images (pixel color intensity) of urban scenes taken from the top of a vehicle, which ground truth labels for roads. There are three different scene categories, as seen in figure 1:

- urban unmarked roads (uu),
- urban marked roads (um),
- urban roads with multiple marked lanes (umm),

each with roughly 100 training images and 100 test images. The main dataset used will be the urban

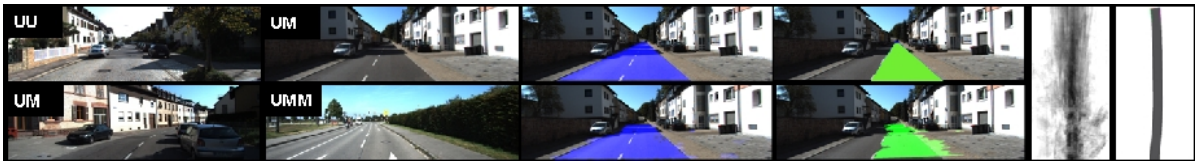

Figure 1: Example of the different scenes in this KITTI dataset with road labels.

marked road dataset as project focuses road estimation and not individual lanes. A possible extension to this project would be to analyze the impact of scene type by evaluating performance on all datasets individually, then combining them.

3 Algorithms

- k-means
- k-Nearest Neighbours
- Support Vector Machines

4 References

*jacob.lambert@mail.utoronto.ca
†rikky.duivenvoorden@mail.utoronto.ca
[1] http://www.cvlibs.net/datasets/kitti/