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DLRV Project proposal

Semantic Segmentation of aerial images of forest scenery

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1 Introduction

Deforestation is becoming an increasingly difficult problem, and it has adverse effects on the bio-diversity, global warming and more. Some of the factors that contribute to Deforestation is agricultural practices, raw materials for construction and household items, land clearing for development projects. [1]. Attempts are being made to reforest the environment and scientists and engineers are looking for better ways to this. For this reforestation efforts it is necessary to estimate the amount of deforested areas and for efficient planting of seeds it is important to find the land that is suitable for seeding. Meaning to find areas that are free of large trees, roads, logs that have already been cut down etc. Semantic segmentation of forest imagery is one solution to this problem.

The objective of the project is to perform semantic segmentation using Deep learning techniques. The project will use labelled data of forest scenery captured from an aerial view (most commonly by unmanned aerial vehicles). An Example of the type of data that will be used for the project is given in the Figure1.



Figure 1: Forest imagery

The expected final result is to have a pixel-wise segmentation of the forest into the following categories

- Empty forest area

- Trees
- Shrubbery
- Logs(cut down stacks of trees)
- Roads(dirt and tarmac)

1.1 Project Plan

1.2 Models and tools

1.3 Data sets

1.4 Potential problems

2 Related Work

- What have other people done?
- Why is it not sufficient?

References

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