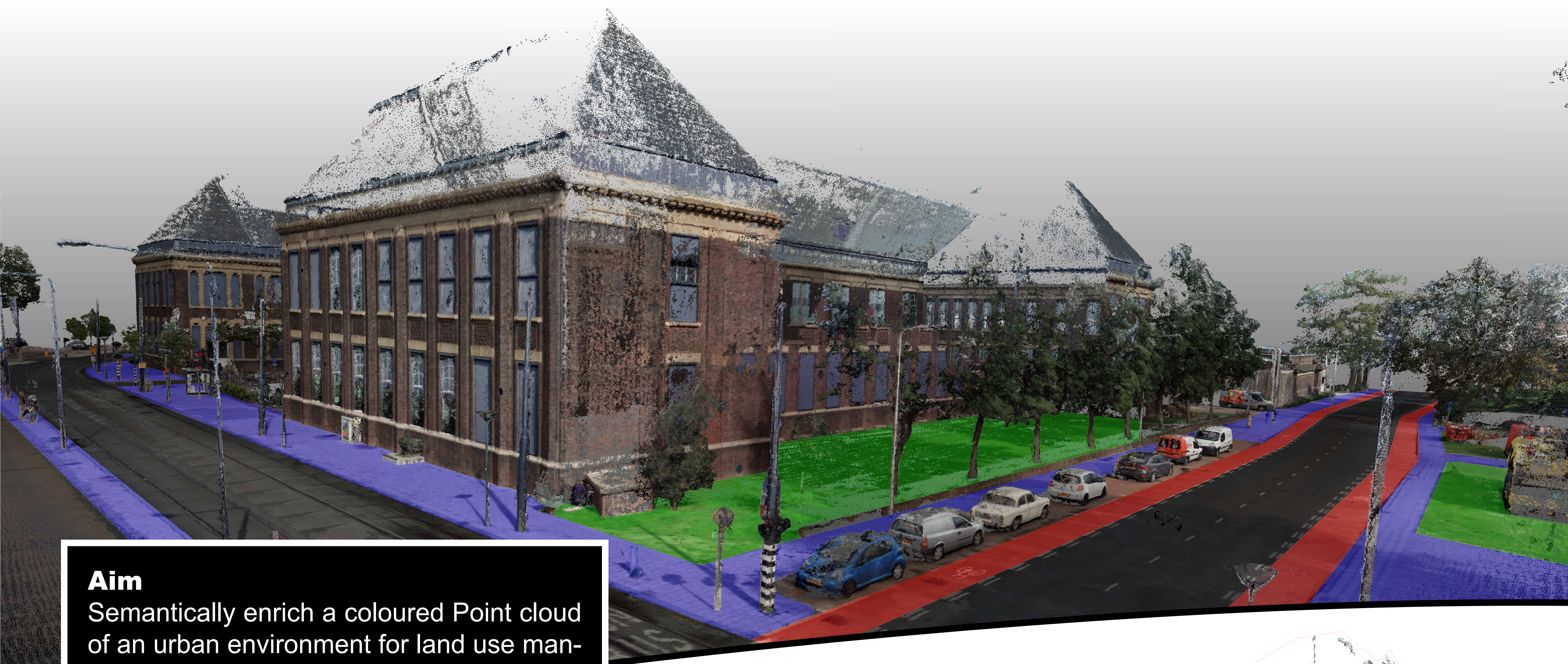


SEMANTICALLY ENRICHING POINT CLOUDS

The case of street level



Aim

Semantically enrich a coloured Point cloud of an urban environment for land use management and surface infiltration analysis. This can offer new possibilities for the direct use of Point Clouds and the interpretation of the human environment.

Data Collection

The coloured Point Cloud is provided by Cyclomedia with the use of their high definition Cyclorama's.

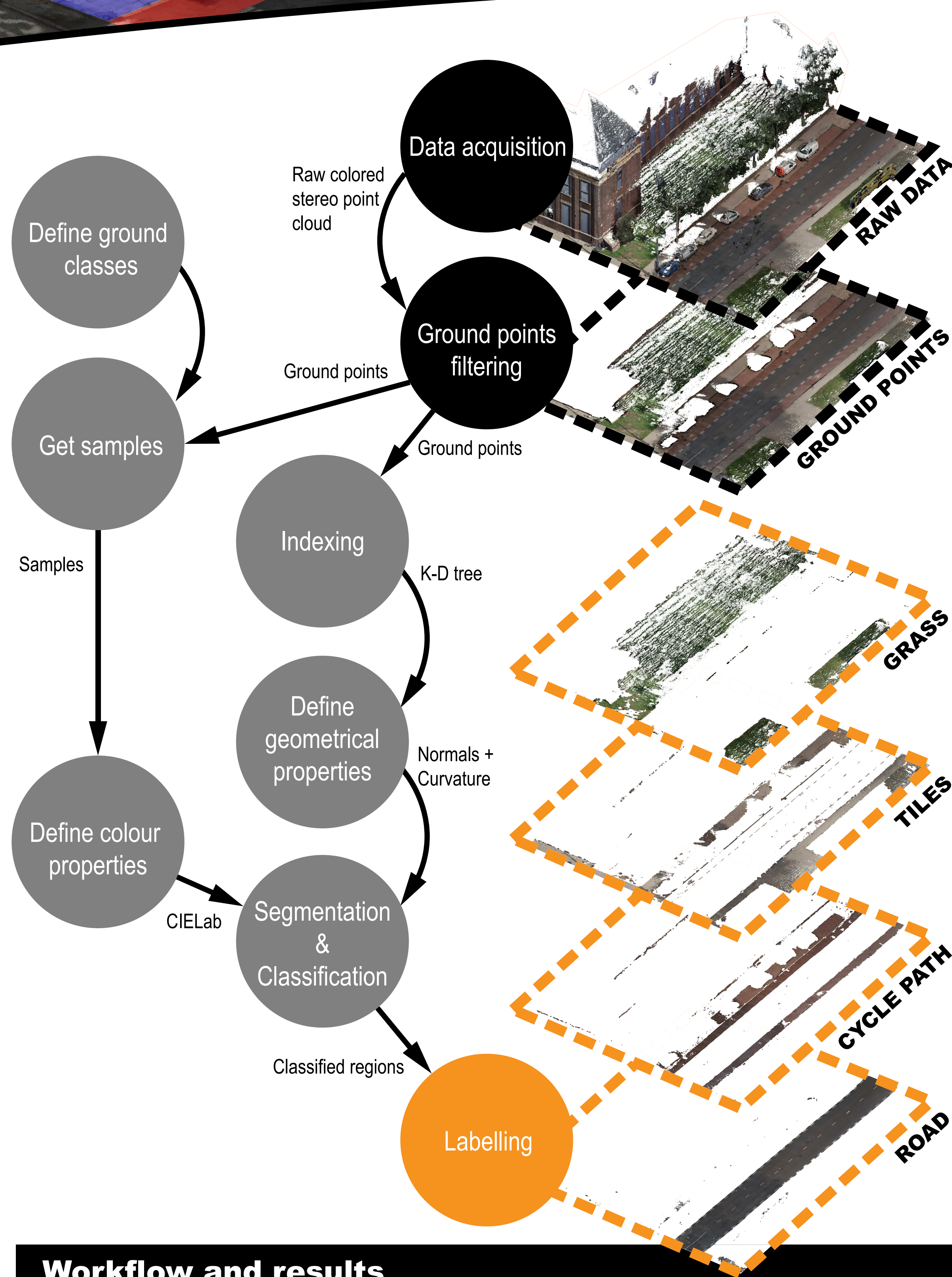
Approach

In order to semantically enrich the Point Cloud, first the ground points are filtered out. Then both a point based method and a region based method are tested. This is done either with a supervised or an unsupervised workflow.

The suggested method uses a supervised classification that applies a region growing algorithm based on color values and geometrical properties. The geometrical properties, curvature and normals, are derived by using the k-nearest neighbours of each point.

Result

The end product is a semi-automatic workflow for semantically labelling ground points in a Point Cloud. The output is a Point Cloud that consists out of separate user defined classes. In this project a distinction is made between road, cyclepath, tiles and grass.



Workflow and results