Chair for Computation in Engineering
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Software Lab:

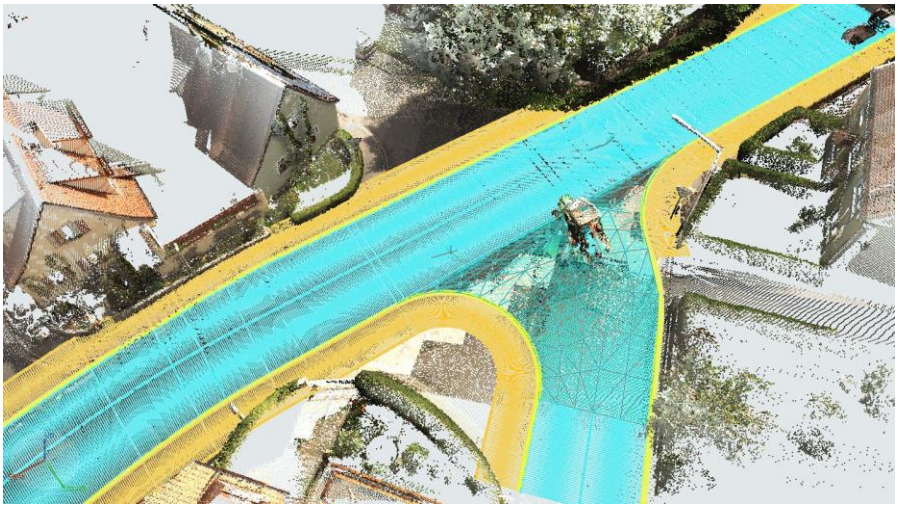
Modeling: ★☆☆☆☆
Mathematics: ★★★☆☆
Programming: ★★★★★

From 3D Point Clouds to a Road Model

Setting

Laser scanning becomes more and more important in the survey of buildings. Nowadays it is possible to scan whole streets and even urban quarters with a point density that allows rendering a photorealistic 3D model. This reduces the survey costs for the initiator of road building projects.

On the other hand the road designer now faces the problem that he has to extract the basic design information from this huge amount of data – a task that was formerly accomplished by the surveyor.



For this purpose a program shall be developed, which semi-automatically extracts basic design data like break lines or digital terrain models from a point cloud.

The first tasks of this project will be the creation or extension of an application (e.g. AutoCAD ARX Addin or TUM Open Infra Platform) to handle and display point clouds.

One possible approach would be to first display cross sections of the point cloud along the road alignment and then let the user select distinctive points in the cross section (road center, gutter, curbstone etc.). The program could then calculate break lines at these positions.

Tasks

- import a point cloud file
- display a cross section of the point cloud at a certain station of a road alignment
- let the user select distinctive points in the cross section and calculate break lines at these positions

Supervisors

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