

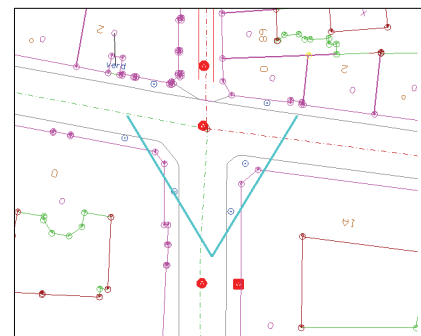
URBAN

Measuring, reconstructing, viewing, animating and navigating of URBAN environments

Areas that require 3D data acquisition in urban environments currently are under great pressure to improve both the efficiency and quality of the underlying acquisition procedures. Sometimes the focus is on 3D measurements (planning, maintenance of infrastructure, ...), sometimes rather on creating and rendering models to create realistic appearances (movies, tourism, navigation aids, ...) and recently also more and more on interactions (games, location-based services, ...). URBAN will work to remove a number of key stumbling blocks in several of these domains.

Digital Surveying

The first work package extracts 3D data for the masses of buildings in cities, with an emphasis on the precision. The chosen system uses a van with 8 cameras, and the necessary processing pipeline to extract 3D coordinates for points clicked on in an image. Field work therefore is reduced to a minimum.



Object recognition



Several of URBANs application domains would benefit from object recognition. First of all for the object itself. Local authorities would like to know f.e. where traffic signs, street furniture etc. are located. Cartographers are interested in the position of road sides and roof edges. Object recognition will also be relevant in the area of visualisation and the modeling of buildings. To filter out cars, bicycles etc. from the texture of buildings it is important to recognise them first. In order to model windows and doors it is good to know where they are.

3D City modeling for visualisation

This work package deals with the extraction of 3D data for the mass of regular buildings in cities. But in contrast to WP 1, the focus does not lie on precision, but on visualization and, therefore, visual realism of the models. Yet, realism is not the only consideration, as streaming the data to platforms with limited rendering power means that high visual quality needs to be coupled to compact representations.



Visualisation of and interaction with 3D city models

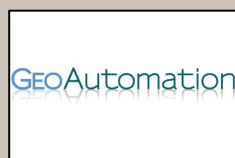
An important factor for the success of 3D city modeling (geometric models, but also IBR) is how the interaction with this data is handled. Because of the large-scale and possibly detailed nature of the data, providing a full copy on each client device will not be possible in most cases, making streaming and server capacity crucial elements. Furthermore it has to be investigated which forms of interaction, besides simply navigation, is demanded by the client. 3D visualization leads to new user experiences of navigating and creates innovative opportunities for interacting with augmented urban spaces. These immersive locative media and urban computing are expected to create novel user practices. These future practices are investigated by doing in-depth socio-technological user research.



Legal Aspects

URBAN makes intensive use of images, taken by vans in the public domain, which raises questions about privacy. Another issue that needs to be taken into account are intellectual property rights. The plans and constructions of buildings are works that are protected and the architect will be protected as an exclusive rightholder, who will have to give permission for the adaptation or reproduction of his work.

In cooperation with



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