

AUTOMATED 3D MODELS OF URBAN ENVIRONMENTS

Tech ID: 17604 / UC Case 2006-035-0

ABSTRACT

Three-dimensional photo realistic models of urban environments that can be used for simulation and interactive fly-thrus are useful in a growing variety of applications such as urban planning, disaster training, virtual heritage conservation, and Internet-based consumer services. However, previous methods for producing these images were slow and required enormous amounts of manual work -- consequently making these simulations cost-prohibitive for most commercial applications.

To address this challenge, researchers at UC Berkeley have combined visualization techniques from a variety of research areas to develop a fast method of generating photo realistic 3D models of urban landscapes with minimal human intervention. The following multiple formats can be used as input to this modeling software: ground based laser scans and intensity images, as well as airborne lidar data and imagery.

For more information about the technology, go to

<http://www-video.eecs.berkeley.edu/~frueh/3d/index.html>

http://www-video.eecs.berkeley.edu/~avz/3d_modeling.ppt

http://www-video.eecs.berkeley.edu/~avz/3d_urban_industry_prop_ref.pdf

APPLICATIONS

Consumer and industrial applications that can benefit from photo realistic 3D models of urban landscapes.

ADVANTAGES

- » Generates a 3D model of building facades that were scanned using an acquisition system for collecting ground-based laser data.
- » Generates a rooftop model of buildings that were aerially scanned using an airborne lidar system.
- » Fuses ground-based 3D models of facades with rooftop models by creating a blend mesh.
- » Texture-maps the reconstructed 3D facades using ground-based imagery.
- » Texture-maps the roofs and facades using aerial oblique imagery.

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OTHER INFORMATION

KEYWORDS

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CATEGORIZED AS

» **Imaging**

» Other

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