



Universität Stuttgart



Tutorial

All About 3D Modelling
From 2.5D Meshes to
3D Virtual Reality Models

September 8th, 2013

Keplerstr. 17,
room 17.12 (1st floor)

54th Photogrammetric

www.ifp.uni-stuttgart.de/phowo

Program

8⁰⁰ - 10⁰⁰ Registration

Introduction "All About 3D Modelling"

Dieter Fritsch

10⁰⁰ - 11⁰⁰

- * Introduction – All About 3D Modelling
- * Point Clouds & Registrations
- * Dual 2D & 2.5D Data Structures: Voronoi – De-launey
- * 3D Segmentation & Modelling
- * Standard SW for 3D Model Generation
- * 3D Model Integration

11⁰⁰ – 11³⁰ Coffee Break

Point Clouds and 2.5D Meshes (Generation, Integration and Meshing)

Mathias Rothermel, Konrad Wenzel

11³⁰ - 12⁴⁰

- * Dense Image Matching and Triangulation for PC Delivery
- * Filters and Tools for 3D Point Cloud Processing
- * 2.5D PC Fusion and Meshing
- * 3D Integration Methods

12⁴⁰ – 14¹⁰ Lunch Break

About 3D Modelling – From CAD Models over Building Information Models to Procedural Models

Volker Walter, Susanne Becker

14¹⁰ - 15¹⁰

- * 2D, 2.5D, 3D Modelling
- * Building Information Modeling and Urban Modelling
- * Hybrid Model
- * Procedural Modelling

3D Rendering of Virtual Globes

Michael Cramer

15¹⁰ - 16¹⁰

- * Virtual Globes Characteristics and Challenges
- * Mathematical Foundations
- * Globe Rendering: Tessellation – Shading – Ray Casting
- * Vertex Transform Precision: Jitter – Rendering Relative to Centre / Relative to Eye
- * Depth Buffer Precision: Complementary / Logarithmic Depth Buffering / Multiple Frustrum
- * Terrain Rendering: Representations – Rendering & Shading Height Maps

16¹⁰ – 16⁴⁰ Coffee Break

The Future of 3D Virtual Reality Models

Norbert Haala

16⁴⁰ - 17⁴⁰

- * Generation of 3D Virtual Reality Models
- * Real-time Visualization of Meshed Models
- * Beyond Standard Airborne Data Collection
- * Urban Object Classification

17⁴⁰ End

18⁰⁰ Icebreaker Party

The participation fee for the tutorial is 200 Euro. This also covers the lectures notes (hard- and softcopy).