



Tutorial

All About Point Clouds
Generation, Processing
and Management

September 4th, 2011

53rd Photogrammetric
Week

Program

8⁰⁰ - 10⁰⁰ Registration

All About Point Clouds

Dieter Fritsch

9³⁰ - 10¹⁵

- * Introduction, state-of-the-art
- * Point clouds from air, ground and mobile carriers
- * Point cloud registrations and transformations
- * Point cloud formats
- * Standard SW for point cloud processing

10¹⁵ - 10⁴⁵ Coffee Break

Image-based Dense Point Cloud Generation

Norbert Haala

10⁴⁵ - 11⁴⁰

- * Current developments and applications
- * Matching: Tasks and techniques
- * Image preprocessing and transformations
- * Dense matching: Implementation and evaluation
- * Fusion and filtering from multiple views

Management of Point Clouds and 3D Models

Volker Walter

11⁴⁰ - 12³⁰

- * Data structures for efficient data access
- * Point clouds in Relational Databases
- * From point clouds to surfaces
- * 3D Geographic Information Systems
- * Research topics

12³⁰ - 14⁰⁰ Lunch Break

Outdoors and Indoors Point Cloud Processing

Susanne Becker, Angela Budroni

14⁰⁰ - 15¹⁵

- * Data and knowledge driven point cloud interpretation for LOD3 modeling
- * Automatic inference of individual façade grammars
- * Sweep reconstruction of Manhattan-world indoor volumes
- * Linear and rotational plane sweep for point cloud segmentation
- * Automatic extraction and visualization of 3D interior scenes

15¹⁵ - 15⁴⁵ Coffee Break

Low Def and High Def Point Cloud Generation and Refinement

Konrad Wenzel, Ali Khosravani, Jeanette Milius, Christin Petters

15⁴⁵ - 17¹⁵

- * Low-cost sensors for point cloud generation (MS Kinect etc)
- * Automatic point cloud alignment
- * Surface reconstruction from imagery: system design, calibration, processing
- * Cultural heritage applications
- * Eisriesenwelt: 3D Surveying and visualization of the Largest Ice Cave on Earth

17¹⁵ End

18⁰⁰ Icebreaker Party

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