Optical 3-D
Measurement Techniques
Volume II

Applications in GIS, mapping, manifactoring,
quality control, robotics, navigation, mobile mapping,
medical imaging, VR generation and animation

Papers presented at the conference
organized at
Zurich, Switzerland, September 22-25, 2003
Calibration verification facilities for long-range laser scanners
lavarone A., Martin, E.

TS9  Laser scanning II: Registration & modelling 1

Modelling of laser scanner NIR intensity for multi-spectral point cloud classification
Lichti D.

Registration and integration of point clouds using intensity information
Weisensee M., Wendt A.

Using hybrid multi-station adjustment for an integrated camera laser scanner system
Ullrich A., Schwarz R., Kager H.

Using ground based laser scanners to establish the orientation of terrestrial imagery
Habib A., Ghanma M., Tait M.

TS10  Laser scanning III: Registration & modelling 2

Real-time, multi-scale meshing from range data
Ferrari S., Frosio I., Piuri V., Borghese N.A.

Precision measurement of structural deformation using terrestrial laser scanners
Gordon S.J., Lichti D.D., Chandler I., Stewart M.P., Franke J.

Full automatic registration of laser scanner point clouds
Akça D.

Robust filtering for topographic surveying by terrestrial laser scanner
Chikatsu H., Yokoyama H.

TS11 Mobile mapping

Direct integration of GPS measurements into a photogrammetric network adjustment
Ellum C., El-Sheimy N.

Real-time direct geo-referencing of thermal images for identification and location of forest fire hotspots
Wright D.B., El-Sheimy N.

Segmentation of underwater images by edge detection on posterior probability
Guarnieri A., Pontin M., Pirotti F., Vettore A.

A mobile mapping system for road data capture via a single camera
Gontran H., Skaloud J., Gilliéron P.-Y.

Mobile mapping with laser scanners using the MoSES
Graefe, G.

Part II

TS12 Cybercity modelling

VUP, virtual urban planning
Norgård P.

Generation of 3D city models with linear array CCD-sensors
Gruen A., Zhang L., Wang X.

Reality-based 3D city models with Cybercity-Modeler (CC-Modeler TM) and laserscanner data
Ulm K.

An integrated representation of the outdoor and indoor scenes in Cybercity GIS
Li D., Zhu Q., Liu Q., Xu P.

TS13 Target recognition and tracking

The potential of object recognition using a servo-tachymeter TCA2003
Wasmeier P.

Concepts and components of a novel 6DOF tracking system for 3D metrology
Loser R., Kyle S.

Measuring huge electro-magnets using laser tracker technology
Missiaen D.
Target tracking and measuring based on image bar code
Zhong S., Liu Y.

**TS 14 Deformation measurements**

Application of digital photogrammetry for measuring deformation and cracks during load tests in civil engineering material testing
Hampel U., Maas H.-G.

Photogrammetric monitoring of structural deformation: the federation square atrium project
Fraser C., Brizzi D., Hira A.

Development of an imaging system for monitoring cracks in concrete structures
Riedel B., Niemeier W., Fraser C., Dare, P., Cronk S.

Optimization and extension of gridline-methods to detect object displacements and deformations
von Weben H.

**TS15 Modelling of panoramic camera data**

Potential of panoramic view generated from high-resolution frame images and rotating line scanner images
Luhmann T., Tecklenburg W.

Geometric modelling and calibration of a high resolution panoramic camera
Schneider D., Maas H.-G.

A sensor model for panoramic cameras
Parian A.J., Grün A.

Fusion of digital panoramic camera data with laser scanner data
Reulke R., Wehr A.

**TS16 3D metrology systems I**

State of the art of topometric 3D-metrology
Breuckmann B.
Cybercity modelling

Poster Session

Quality parameters of the optical data channel used in impact tests
Raguse K., Wiggenhagen M.

Automatic estimation of forest inventory parameters based on Lidar, multi-spectral and FOGIS data
Diedershagen O., Koch B., Weinacker H.

A globally convergent Gauss-Newton algorithm for the bundle adjustment problem with functional constraints
Börlin N., Lindström P., Eriksson J.

A high productivity procedure for road section surveying based on the rectification of images taken from a moving vehicle
Massumeci G., Condorelli A., Silicato G.

Principle of coordinates acquisition using one single camera
Huang G., Wang B., Li G.

A new algorithm for orientation parameters in multi-theodolite industrial measuring system
Chen J., Huang G., Li G.

Performance evaluation of commercial S-VHS cameras for object displacement monitoring
Tournas L., Georgopoulos A.

Sensor model for airborne CCD linear scanners
Poli D.

Photogrammetric reconstruction of arcs and lines based on one dimensional point template matching

Image capturing and visualization by ADS40
Sasagawa T., Fukuzawa Y., Yotsumata T.

Results of automatic aerial triangulation using different commercial software packages
Buyuksalih G.

Investigations in boresight and lever-arm calibration
Ellum C., El-Sheimy N.