

## Curve and Surface Approximation of 3D Point Clouds

Kurven- und Flächen-Approximation von 3D-Punktwolken

Deformation analysis using 3D point clouds usually requires the description of the data by means of continuous mathematical functions. Depending on the complexity of the (captured) subject and the desired quality for this purpose different functions can be utilized. This contribution summarizes the most important free form surfaces like polynomials, Bezier surfaces, B-Splines and NURBS. Besides the mathematical basics the approximation process as well as the regulating variables are described.

J. Bureick, H. Neuner, C. Harmening, I. Neumann

## Overview on Current Modelling Strategies of Point Clouds for Deformation Analysis

Überblick aktueller Methoden zur Modellierung von Punktwolken für die Deformationsanalyse

Modelling of point clouds from terrestrial laser scanning is required for many fields of application. An overview on state of the art methods is given and modelling methods used for retrieving deformation information are presented. Additionally, modelling methods with regard to the most common types of analysed measuring objects in engineering geodesy are structured. This links conceptually existing model categories, the adopted modelling strategy and the object type.

H. Neuner, Ch. Holst, H. Kuhlmann

## Areal Deformation Analysis from TLS Point Clouds – The Challenge

Flächenhafte Deformationsanalyse aus TLS-Punktwolken – die Herausforderung

Terrestrial laser scanning today is frequently applied in practice for areal determination of structural deformations. However, approaches to rigorous deformation analysis and tests of significance are rare. Therefore firstly the conditions are examined where and when areal deformation monitoring by TLS, respectively statistical validation beyond straightforward analysis, proves necessary. Then, the concepts to model point clouds for the purpose are itemized and three different approaches to tests of significance are shown.

Th. Wunderlich, W. Niemeier, D. Wujanz, Ch. Holst, F. Neitzel, H. Kuhlmann

## 313 | Gast-Editorial

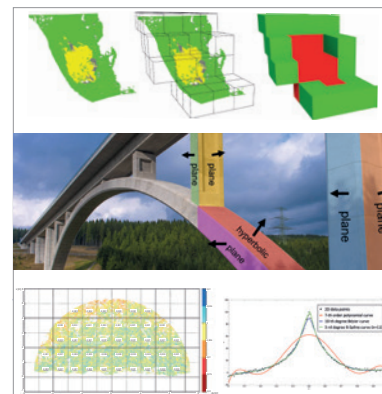
## 315 | Fachbeiträge begutachtet

- 315 Curve and Surface Approximation of 3D Point Clouds
- 328 Overview on Current Modelling Strategies of Point Clouds for Deformation Analysis
- 340 Areal Deformation Analysis from TLS Point Clouds – The Challenge

## 352 | avn aktuell

- 352 Firmennachrichten
- 352 Nachrichten
- 353 Normung
- 354 Produktinformationen
- 356 Wichmann Innovations Award

## 356 | Impressum



Modellierungsaspekte der flächenhaften Deformationsanalyse auf der Basis von TLS-Punktwolken