

FREIE UNIVERSITÄT BERLIN
Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

DISPUTATION

Donnerstag, 12. April 2018, 11.00 Uhr

Ort: SR 108/109, Arnimallee 6, Pi-Gebäude, 14195 Berlin

Disputation über die Doktorarbeit von

Herrn Sunil Kumar Yadav

**Thema der Dissertation:
Surface Denoising**

Based on the Variation of Normals and Retinal Shape Analysis

**Thema der Disputation:
Feature-Preserving Mesh Denoising**

Die Arbeit wurde unter der Betreuung von **Prof. Dr. K. Polthier** durchgeführt.

Abstract: Surface denoising is a central preprocessing tool in discrete geometry processing with many applications in computer graphics such as CAD, reverse engineering, virtual reality and medical imaging. During a surface measurement, noise is inevitable due to various internal and external factors and this degrades surface data quality and its usability. The main goal and a challenging task of a surface denoising algorithm is to remove spurious noise and compute a high quality noise-free surface while preserving sharp features.

In the first part of the presentation, I will explain mesh denoising and mesh smoothing in the Fourier framework, and review some state-of-the-art mesh denoising algorithms. Additionally, I will discuss a curvature tensor and its relation with principal curvatures. In the second part of the presentation, I will introduce a shape analysis operator based on the variation of surface normals. Using the proposed shape analysis operator, point set and mesh denoising algorithms are introduced. Moreover, geometry-processing algorithms including the proposed denoising methods are applied to OCT (optical coherence tomography) data for 3D shape analysis of the retinal shape.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. K. Polthier