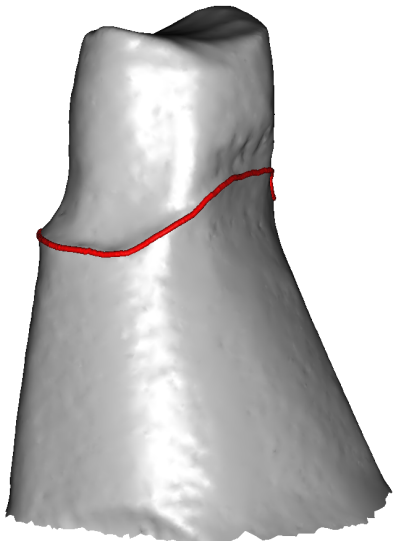
Preparation Margin Detection

Pagoda Systems
Software Solutions

3D digitalization of prepared tooth stumps allowes the virtual construction of dentures. An exact termination of the dental prothesis at the so called preparation margin is of central importance to dental restorations. Using the software module ***Prepline-Detection*** these preparation margins can be detected fully or semi automatically as well as interactively within the digitized data.

Applications

- Dental CAD constructions: crowns, inlays, onlays



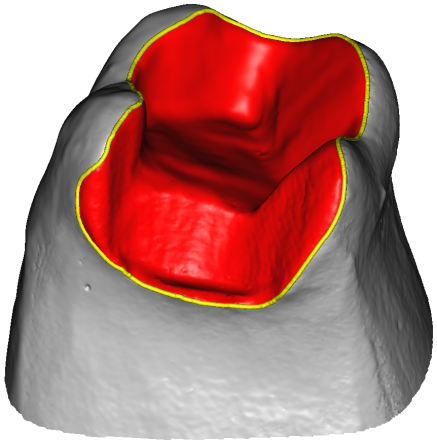
Fully automated detection of a low distinct preparation margin in an undercut area

Features

- Automatic method with very high detection rate (even for tangential preparations and in undercut areas)
- Sub-pixel accuracy
- Alternatively: semi-automatic detection in seconds using a few clicks
- Interactive correction methods: local or for the whole preparation margin
- Automated segmentation of the digitized data
- Export of preparation margin as polygon or spline curve
- Export of segmented surfaces in any format (ASCII, STL)

Methods

- Approximation of curvature tensors for unstructured triangle meshes
- 2D/3D feature extraction
- Optimized tracking methods (time-delayed dynamic programming)
- Semi-automatic detection: weighted shortest-path-algorithms (A*)
- Segmentation: powerful mesh clipping methods



Automatically detected preparation margin for an inlay with segmented surface

Implementation

- Programming language C++
- Modular design either for the integration into existing software systems or as stand-alone application including visualization (OpenGL)
- Support of multi-core architectures and 64-bit platforms

Pagoda Systems Software Solutions, Tannenäckerstrasse 8, 70469 Stuttgart
Fon: +49 (0) 711 8065641 Fax: +49 (0) 711 8065642 info@pagoda-systems.de www.pagoda-systems.com