Keynote Speaker

Research of Key Technology on Measuring, Modelling and Rapid Prototyping for Repairing Incomplete Geometric Features

Jin Sun^{a,*}

^aYangzhou University, China

*Corresponding Author: sunjin1001@126.com

Abstract

In reverse engineering, three-dimensional models are the base of the subsequent rapid prototyping, engineering analysis and virtual simulation and so on. The model reconstruction is the critical and the most complex step in the whole procession of the measuring data. The model reconstruction technique for incomplete geometrical features is an important branch of three-dimensional reconstruction technique. The characteristic of this technique is to recover the original defect information by analyzing the characteristics of known data. The modelling technique is widely used in medical engineering, product design and manufacturing, product testing and quality control, virtual reality, body measurement, heritage conservation and other fields. Especially in the facial plastic surgery field, more and more attention is paid. In the prosthetic treatment, in order to meet the repair requirements, such as, high precision, high efficiency and good aesthetic, the patients facial models are analysed and feature-reconstructed. In addition, the realistic visualization also can be achieved by attaching the texture of facial skin to three-dimensional facial model. At the same time, after modelling, mirroring, and fitting to match the surrounding tissue, three-dimensional prosthesis model can be accurately constructed. Our research will meet the goal of studying the characteristics of non-complete geometric features based on the analysis for restoring the defect data information, and developing the corresponding model construction and processing software tools based on the background of the facial plastic surgery and defect, and ultimately forming a highly integrated CAD system of the facial defect repair for clinical application.