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Personalized 3D Model of Bone Scaffold Created by Application of Method of Anatomical Features

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Abstract— Tissue engineering is a field of science focused on developing biocompatible substitutes for the tissue affected by the disease or trauma. Main components of these substitutes can be cells, scaffold and grow factors. Scaffolds are supporting structure for cells, and they enable cell growth and tissue regeneration. Scaffold design (architecture) is an important factor which greatly influence on mechanical stability of the structure, and transport of nutrients to the tissue substitute. For the creation of personalized 3D scaffold model novel design approach based on application of Method of Anatomical Features (MAF) is presented in this paper. MAF is a method that has been already successfully implemented for the creation of personalized bone geometrical models. The main benefits of scaffolds created in this way are simpler design which enables semi-automatic personalization and creation of the scaffold three-dimensional model.

Keywords— scaffold, 3D model, design, human tibia

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