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Editorial

In this issue of *Virtual and Physical Prototyping*, there are three Virtual Prototyping papers and two Physical Prototyping papers. Interestingly, three of the five papers relate to the area of bone tissue engineering, an area which is of great and current research interest to readers.

In the first paper by Pandithevan and Saravana Kumar, the work presents a modeling method for design and manufacturing of femoral bone scaffolds with subject-specific external geometry as well as internal porous architecture. These models are developed from histological observations and analysis of CT images of a limited number of cadaver femurs.

Still in the field of Virtual Prototyping, Bian *et al.* propose a coupling analysis method for a large-scale structure exposed to synchronous hoisting loads. An integrated analysis flow based on virtual prototyping is provided for the coupling analysis process with different design and simulation software tools which include project design, CAD CAE model building and interchange.

Cheng and Zhao propose an auto-calibration technique based on stereovision. Their technique is called multiple target tracking. The algorithm is original and innovative, and aims at detecting outlines based on random placing and regular numbers.

Moving over to the field of Rapid Prototyping, a morphology-controllable modeling approach for a porous scaffold structure in tissue engineering is proposed by Cai and Xi. The modeling approach consists of both irregular pore-making element modeling and whole bone scaffold modeling. Compared to the stochastic geometry method and discrete element packing method, the bone scaffold model obtained in this paper has continuous, smooth contour and various irregular pores.

Finally, Pandithevan and Saravana Kumar describe a personalized bone tissue engineering scaffold with controlled architecture using fractal tool paths in layered manufacturing. Their research proposes a biomimetic design and layered manufacturing of patient- and site-specific controlled porosity scaffolds for optimized mechanical properties for repair and regeneration of bone. A case study of a hydroxyapatite scaffold for a cortical bone defect site in human femur is presented to illustrate the methodology.

By the time you are reading this issue, the 4th International Conference on Advanced Research in Virtual and Physical Prototyping (VR@P 2009), from 6 to 10 October 2009, will be just around the corner. The editorial board of this journal will also be having its meeting during this event, with the aim of further improving this journal for the benefits of its readers and the academic and research community in general.

If you are also attending the conference, please do remember to call on us!

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