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By nnikulchina

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«Interactive 3D Image Segmentation and Visualisation - for Cranio-Maxillofacial Surgery Planning and Orthopedic Application»

Annotation

In this talk, I will present an efficient interactive tool for segmenting individual bones and bone fragments in 3D computed tomography (CT) images. The tool BoneSplit, which is primarily intended for virtual cranio-maxillofacial (CMF) surgery planning, combines direct volume rendering with interactive 3D texture painting to enable quick identification and marking of bone structures. The user can paint markers (seeds) directly on the rendered bone surfaces as well as on individual CT slices. Separation of the marked bones is then achieved through the random walks algorithm, which is applied on a graph constructed from the thresholded bones. The segmentation runs on the GPU and can achieve close to real-time update rates for volumes as large as 512x512x512 voxels. The user can perform segmentation editing to correct the result. An evaluation reports segmentation results comparable with manual segmentations, but obtained within a few minutes. The talk will also present how the BoneSplit fits into our a haptics-assisted surgery-planning system.

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[1] <http://www.frccsc.ru/international/membership/roai/ias/about> [2]

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