World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:8, No:05, 2014

View Synthesis of Kinetic Depth Imagery for 3D Security X-Ray Imaging

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Abstract : We demonstrate the synthesis of intermediary views within a sequence of X-ray images that exhibit depth from motion or kinetic depth effect in a visual display. Each synthetic image replaces the requirement for a linear X-ray detector array during the image acquisition process. Scale invariant feature transform, SIFT, in combination with epipolar morphing is employed to produce synthetic imagery. Comparison between synthetic and ground truth images is reported to quantify the performance of the approach. Our work is a key aspect in the development of a 3D imaging modality for the screening of luggage at airport checkpoints. This programme of research is in collaboration with the UK Home Office and the US Dept. of Homeland Security.

Keywords : X-ray, kinetic depth, KDE, view synthesis
Conference Title : ICCVIP 2014 : International Conference on Computer Vision and Image Processing
Conference Location : Istanbul, Türkiye
Conference Dates : May 22-23, 2014