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Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXVIII-5/W12, 133-138, 2011

www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XXXVIII-5-W12/133/2011/

doi: 10.5194/isprsarchives-XXXVIII-5-W12-133-2011

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ACCURACY ANALYSIS OF KINECT DEPTH DATA

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Keywords: Accuracy, error, range imaging, range camera, RGB-D, laser scanning, point cloud, calibration, indoor mapping

Abstract. This paper presents an investigation of the geometric quality of depth data obtained by the Kinect sensor. Based on the mathematical model of depth measurement by the sensor a theoretical error analysis is presented, which provides an insight into the factors influencing the accuracy of the data. Experimental results show that the random error of depth measurement increases with increasing distance to the sensor, and ranges from a few millimetres up to about 4 cm at the maximum range of the sensor. The accuracy of the data is also found to be influenced by the low resolution of the depth measurements.

[Conference Paper](#) (PDF, 667 KB)

Citation: Khoshelham, K.: ACCURACY ANALYSIS OF KINECT DEPTH DATA, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXVIII-5/W12, 133-138, doi:10.5194/isprsarchives-XXXVIII-5-W12-133-2011, 2011.

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