



Volume XXXIX-B3

Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXIX-B3, 59-62, 2012
www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XXXIX-B3/59/2012/
doi:10.5194/isprsarchives-XXXIX-B3-59-2012
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IMAGE-BASED NAVIGATION OF FOREST HARVESTERS

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Keywords: Photogrammetry, Forestry, Matching, Orientation, Point Cloud, Structure from Motion

Abstract. The focus of this paper the use of multi-image matching techniques in forestry applications. Background of the study is the problem of navigating heavy harvesters through skidder trails on their way to harvesting individual trees.

Maneuvering these heavy vehicles over unprotected forest ground leads to irreversible soil compression and degradation effects. Therefore, harvester operators strive to navigate in a way that exactly the same (already compressed) path is used when they enter a skidder trail for a second time. For this task, vehicle navigation on a decimeter accuracy level is required. Data of existing techniques, such as GPS, IMU and/or odometry are error prone, because of difficulties like fluctuating signal strength of satellites caused by dense plant canopy, drift of IMU without update, and slippery, rough ground for wheel decoding. A camera, as a passive sensor, may avoid these problems, as it is largely independent to those outer influences.

[Conference Paper](#) (PDF, 1125 KB)

Citation: Schulze, M.: IMAGE-BASED NAVIGATION OF FOREST HARVESTERS, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XXXIX-B3, 59-62, doi:10.5194/isprsarchives-XXXIX-B3-59-2012, 2012.

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