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## USING RELATIVE ORIENTATION CONSTRAINTS TO PRODUCE VIRTUAL IMAGES FROM OBLIQUE FRAMES

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Abstract. Image acquisition systems based on multi-head arrangement of digital cameras are attractive alternatives enabling larger imaging area when compared to a single frame camera. The calibration of this kind of systems can be performed using bundle adjustment with relative orientation stability constraints. The paper will address the details of the steps of the proposed approach for system calibration, image rectification, registration and fusion. Experiments with terrestrial and aerial images acquired with two Fuji FinePix S3Pro cameras were performed. The experiments focused on the assessment of the results of self calibrating bundle adjustment with and without relative orientation constraints and the effects in the registration and fusion when generating virtual images. The experiments have shown that the images can be accurately rectified and registered with the proposed approach, achieving residuals smaller than 1 pixel.

[Conference Paper](#) (PDF, 969 KB)

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