Volume XL-5

Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-5, 47-54, 2014
www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-5/47/2014/
doi:10.5194/isprsarchives-XL-5-47-2014

Evaluation of feature-based methods for automated network orientation

F.I. Apollonio[1], A. Ballabeni[1], M. Gaiani[1], and F. Remondino[2]
[1]3D Optical Metrology (3DOM) unit, Bruno Kessler Foundation (FBK), Trento, Italy
[2]Dept. of Architecture – University of Bologna, Italy

Keywords: Orientation, Automation, Feature extraction, Calibration

Abstract. Every day new tools and algorithms for automated image processing and 3D reconstruction purposes become available, giving the possibility to process large networks of unoriented and markerless images, delivering sparse 3D point clouds at reasonable processing time. In this paper we evaluate some feature-based methods used to automatically extract the tie points necessary for calibration and orientation procedures, in order to better understand their performances for 3D reconstruction purposes. The performed tests – based on the analysis of the SIFT algorithm and its most used variants – processed some datasets and analysed various interesting parameters and outcomes (e.g. number of oriented cameras, average rays per 3D points, average intersection angles per 3D points, theoretical precision of the computed 3D object coordinates, etc.).

Conference Paper (PDF, 1086 KB)

Citation: Apollonio, F.I., Ballabeni, A., Gaiani, M., and Remondino, F.: Evaluation of feature-based methods for automated network orientation, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XL-5, 47-54, doi:10.5194/isprsarchives-XL-5-47-2014, 2014.

Bibtex EndNote Reference Manager XML