

DETECTION OF WINDOWS IN IR BUILDING TEXTURES USING MASKED CORRELATION

D. Iwaszczuk, L. Hoegner, U. Stilla

Photogrammetry & Remote Sensing, Technische Universitaet Muenchen (TUM), Arcisstr. 21, 80333 Munich, Germany –
(iwaszczuk, hoegner, stilla)@bv.tum.de

Working Groups I/2, III/1, III/4, III/5

KEY WORDS: infrared, image sequences, texture mapping, structure detection

ABSTRACT:

Infrared (IR) images depict thermal radiation of physical objects. Imaging the building hull with an IR camera allows thermal inspections. Mapping these images as textures on 3D building models, 3D geo-referencing of each pixel can be carried out. This is helpful for large area inspections. In IR images glass reflects the surrounding and shows false results for the temperature measurements. Consequently, the windows should be detected in IR images and excluded for the inspection. In this paper, an algorithm for window detection in textures extracted from terrestrial IR images is proposed. First, a local dynamic threshold is used to extract candidates for windows in the textures. Assuming a regular grid of windows masked correlation is used to find the position of windows. Finally, gaps in the window grid are replaced by hypothetical windows. Applying the method for a test dataset, 79% completeness and 80% correctness was achieved.

This contribution was selected in a double blind review process to be published within the *Lecture Notes in Computer Science* series (Springer-Verlag, Heidelberg).

Photogrammetric Image Analysis

Volume Editors: Stilla U, Rottensteiner F, Mayer H, Jutzi B, Butenuth M

LNCS Volume: 6952

Series Editors: Hutchison D, Kanade T, Kittler J, Kleinberg JM, Kobsa A, Mattern F, Mitchell JC, Naor M,
Nierstrasz O, Pandu Rangan C, Steffen B, Sudan M, Terzopoulos D, Tygar D, Weikum G

ISSN: 0302-9743

The article is accessible online through www.springerlink.com.

