

# Investigation of photogrammetric images using brightness distribution probability matrices

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## *Abstract*

The paper investigates the possibility of using statistical textural features for the analysis of photogrammetric images. The textural features were calculated on the basis of the brightness probability distribution matrices. In order to analyze the images, the fields of textural features are developed using algorithms for recursive recalculation of features and the matrix itself. Further processing of textural fields allows to distinguish objects and alignment marks in images. The paper investigates the accuracy of the algorithms and their resistance to additive noise.

*Keywords:* photogrammetric image, statistical textural feature, brightness probability distribution matrix, recursive recalculation, matrix, additive noise.

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## *References*

- [1] Ilyasova NY, Kostin VM, Kotlyar VV, Kupriyanov AV, Roshchin AV, Ustinov AV. System of object recognition in photogrammetric images [In Russian]. Computer Optics 2001; 21: 185-192.
- [2] Ilyasova NY, Kupriyanov AV, Ustinov AV, Khramov AG. Classification of crystallogram images using the methods of statistical analysis of texture images. Computer Optics 2000; 20: 122-127.
- [3] Shirvaikar M, Trivedi M. Developing texture-based image clutter measures for object detection. Opt Eng 1992, 31(12): 2628-2639.
- [4] Haralick RM, Shanmugam K, Dinstein I. Textural features for image classification. IEEE Trans Syst Man Cybern 1973; 3(6): 610-621.
- [5] Soifer VA, Sergeev VV, Popov SB, Myasnikov VV. Theoretical fundamentals of digital image processing [In Russian]. Samara: SSAU Publisher; 2000.