The Comparison of Harris Corner Detection Method and Statistical Methods for Detection of Dominant Points of Two Dimensional Objects

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Abstract

Dominant point detection problem is one of the most important issues of image analysis researches since dominant points of an object carry the most important information within the boundary points of that object. The main aim of researching the dominant points of an object is to be able to represent an object on the digital image with a limited number of points. We need such a simplification to reduce the unnecessary large amount of raw data. The object detection algorithms work efficiently. The Harris Corner Detection, which is fundamentally based on thresholding technique, is a well-known method which is used for detection the dominant points of 2-dimensional objects. In this paper we compare the performances of the Harris Corner Detection algorithm and statistical methods that are local and global which I proposed as a master thesis in 2012. This study aims to determine the strengths of both approaches relative to each other and open a way for further studies such as optimal number of dominant points of an object in a digital image.

Keywords: Dominant point detection, pattern recognition, corner detection
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Bibliography

[1] Güngör, Ç. (2012). *Optimization Algorithms For Detection Of Dominant Points Of Objects In Binary Images*, Master Thesis, Department of Statistics and Computer Sciences, Karadeniz Technical University, Trabzon, Turkey.
[2] Harris, C. and Stephens, M. (1988). *A Combined Corner and Edge Detector*, Proceedings of The Fourth Alvey Vision Conference, Manchester, UK, 147–151.
[3] Orguner, U. and Gustafsson, F. (2007). *Statistical Characteristics Of Harris Corner Detector*, SSP '07 Proceedings of the 2007 IEEE/SP 14th Workshop on Statistical Signal Processing, IEEE Computer Society Washington DC, USA, 571–575.