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Shape Approximation Based on Higher-Degree Polynomials

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The planar shape (contour) of an object is a fundamental source of information in a pattern recognition problem. Obtaining the relevant information set rests on difficult procedures and is a key problem in pattern recognition [1]. A method is proposed for the segmentation of contours with a complex geometrical form. It is based on a parametric piecewise approximation of 12th order spanned by a polynomial model defined by basic elements [2]. Higher-order polynomial approximation [3], [4] allows to optimize the number of segments on the contour and to obtain analytically the dependence of the curvature for more exact calculation of informative signs that are invariant to geometrical transformations. The algorithm based on this method as well as specific examples are described in detail.

References

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