Estimation of band level resolutions of human chromosome images

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Abstract

Current estimation methods for band level resolutions of human chromosome images in cytogenetic laboratories are time consuming and required experienced specialists to manually perform. To alleviate this problem, in this paper, a computerized approach to estimate band level resolution is proposed. The intensity gradient profile and sign profile of chromosome images are utilized to count the number of bands. Then band level resolutions of chromosome images are classified into three categories: 400-, 500-, and 550-band levels by using k-nearest neighbor algorithm. The experimental results show the accuracy of the proposed algorithm. We also provide a discussion on how to improve the overall accuracy. © 2012 IEEE.

Author Keywords

band level resolution; feature extraction; image processing; k-nearest neighbor; medial axis determination

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