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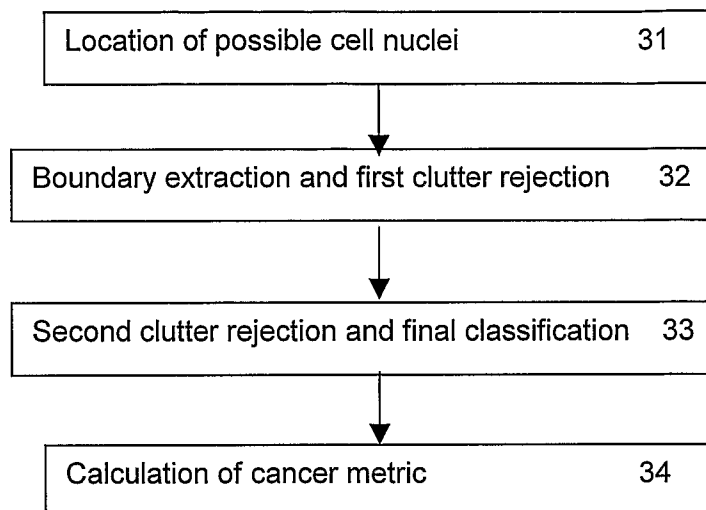
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(54) Title: IMAGE ANALYSIS



(57) Abstract: A method for the automated analysis of digital images, particularly for the purpose of assessing nuclear pleomorphism from images of histological slides for prognostication of breast cancer. The method includes the steps of identifying the locations of objects within the image which have intensity and size characteristics consistent with epithelial cell nuclei and deriving boundaries for those objects. Statistics concerning at least the shapes of the derived boundaries are calculated and clutter is rejected on the basis of those statistics and/or they are used to assign probabilities that the respective objects are epithelial cell nuclei, and a measure of the variability of at least the areas enclosed by such boundaries is then calculated. In one embodiment the boundaries are derived by seeking closed contours consisting of points of the same grey-level within regions centred on the locations of such objects. Another embodiment involves the deformation of a closed loop starting within the respective object, moving outward in stages in accordance with grey-level gradients around the loop, and selecting as the best fit to the real boundary the deformed loop which satisfies specified edge metrics.

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