Abstract

Cancer detection and classification of histopathological images is the standard clinical practice for the diagnosis and prognosis of any cancer. In this paper we present the colon cancer detection and classification of benign and malignant tumor (Nuclei) based on H & E stained histopathology and color segmentation based staining method to distinguish the different types of tissues in biomedical application. Nucleus detection in H&E is a challenging problem considering the variability, heterogeneity, low contrast, K means clustering, and differing typologies of nuclei to distinguish different types of tissues. There are strong indications that morphological analysis in H&E can serve as a biomarker. The segmentation approach is completely colour based and uses k-means clustering technique. This technique uses a series of algorithm steps which is an image processing approach in distinguishing the different tissue types. These algorithm steps are modelled in image processing tool box of MATLAB v7. 0. Modelling steps involved are from reading the image to segmentation of the nuclei into a separate image. Further there are also the intermediate steps that are involved between reading the image and segment the nuclei into a separate image in MATLAB real-time simulation environment.
References

- Otsu Nobuyuki, "A Threshold Selection Method from gray level Histograms", vol. SMC-9, no. 1, January 1979
- I. Pitas, A. N. Venetsanopoulos, (1990) "Nonlinear Digital Filters"
- Pratt W. K., (1991) "Digital Image Processing"

Index Terms

Computer Science
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Keywords

Histopathology And Colon Cancer  K Means Clustering color Segmentation  Image Processing