Increased Image Quality for Early Colon Polyp Detection

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Technology description

Summary

The invention relates to a method for improving the specificity and sensitivity of computer tomographic colonoscopy (CTC) computer aided detection (CAD). Currently CTC CAD programs are capable of delivering high sensitivity and low false positive results when used to detect large polyps of 1cm or greater in diameter. However, CTC CAD is not as effective at detecting medium-sized polyps (6-9 mm in diameter) as it demonstrates lower sensitivities and higher false positives in this range. Since early polyp detection is critical to the survival of patients with colon cancer, the ability to accurately detect medium size polyps could be advantageous to the outcome of colon cancer treatment.

The invention uses a wavelet-based analysis to distinguish true polyps from false positives in CTC images. The steps involved include generating a 2D projection image, computing features of the 2D images from their Haar wavelet coefficients, applying the feature selection algorithm, and training a classifier using the selected features to classify CTC CAD.

Using this technology, it will be possible to create high quality images for viewing the colon surface in 3D with reduced false positives in the medium-sized range for colon polyps. The technology can also be used to locate anomalies in both medical and non-medically related image applications such as endoscopy, microscopy, and photography.

Application area

High quality images for early colon polyp detection
Sensitive and efficient colon cancer diagnosis
Locating anomalies in several different image applications
Development Status:
Early stage

Institution

NIH - National Institutes of Health

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