The automated detection of colonic polyps using computed-tomography data

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Abstract

A new technique is implemented for the automated detection of colonic polyps from a CT scan, which is less invasive and less expensive than the standard colonoscopy.

It is usually recommended that all persons over the age of 50 be regularly screened for colon cancer. However, the standard process, colonoscopy, is expensive and invasive. As a result, only a fraction of those who need screening actually get it. Some researchers have therefore been working on screening for polyps using data from a CT scan. This requires a much less invasive procedure at half the expense, but leaves the problem of detecting polyps from the data. Some work has focused on rendering the colon surface in three dimensions for manual inspection; other work has tried using filters based on the curvature of the surface for automatic detection, often in combination with the former approach for verification. This paper presents an independent type of automatic filter, which may be combined with the existing filters for greater accuracy.

The filters described in exploit the shape of a polyp’s interface with the interior of the colon. The filter described herein exploits instead the polyp’s interior properties and the shape of its interface with the soft tissue surrounding the colon.