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Interactive framework for the visual exploration of colonic data

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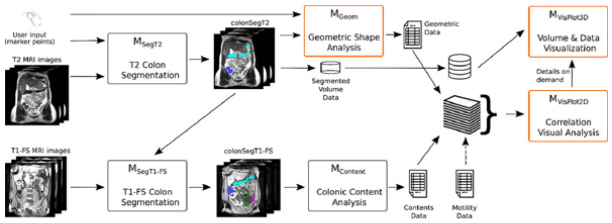

Computerized Tomography (CT) and, more recently, Magnetic Resonance Imaging (MRI) have become the state-of-the art techniques for morpho-volumetric analysis of abdominal cavities. Due to its constant motility, the colon is an organ difficult to analyze. Unfortunately, CTï¿½ï¿½ï¿½s radiative nature makes it only indicated for patients with important disorders. Lately, acquisition techniques that rely on the use of MRI have matured enough to enable the analysis of colon data. This allows gathering data of patients with- out preparation (i.e. administration of drugs or contrast agents), and incorporating data of patients with non life-threatening diseases and healthy subjects to databases. In this paper we present an end-to-end framework that comprises all the steps to extract colon content and morphology data coupled with a web-based visualization tool that facilitates the visual exploration of such data. We also introduce the set of tools for the extraction of morphological data, and a detailed description of a specifically-designed interactive tool that facilitates a visual comparison of numerical variables within a set of patients, as well as a detailed inspection of an individual. Our prototype was evaluated by domain experts, which showed that our visual approach may reduce the costly process of colon data analysis. As a result, physicians have been able to get new insights on the effects of diets, and also to obtain a better understanding on the motility of the colon.

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