

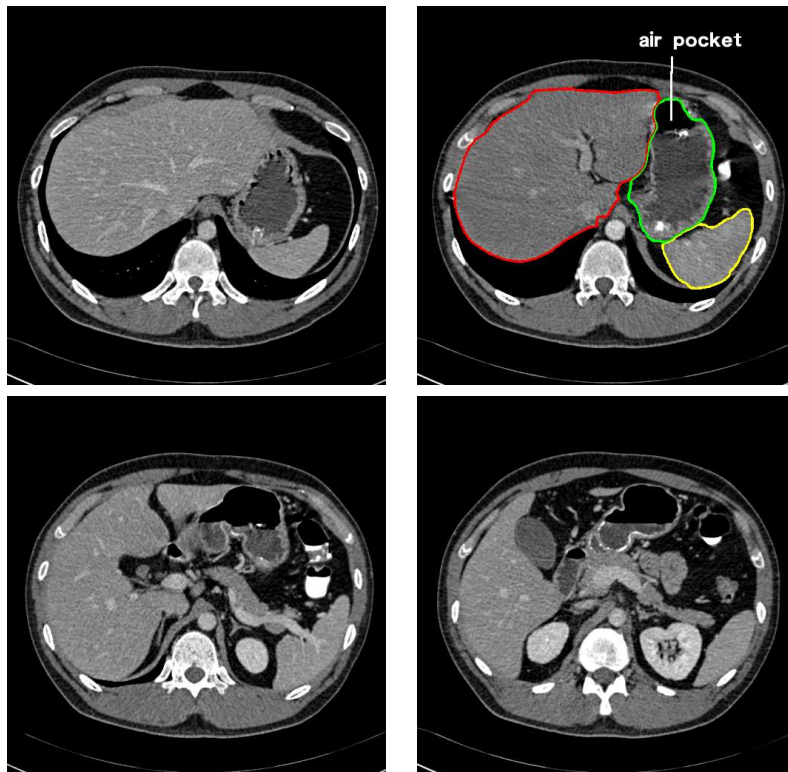
National University of Singapore
School of Computing

CS6240 Multimedia Analysis
Problem Solving Assignment (Option 1)

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Your Visual Computing Company recently ventures into the application domain of medical image processing and analysis. Being the Chief Computer Scientist, your task is to put together a team to perform segmentation of stomach in 3D CT volume images. You examine sample CT images and observe the following characteristics:

- CT volume image is complex and noisy. Some parts of the boundary of the stomach are not visible while other edges can be confused as the locations of the actual boundary.
- The stomach of different patients look similar but vary in fine details such as size and detailed shape.
- The stomach is a hollow organ with a thick wall. The intensities of the stomach wall and interior differ significantly. The intensity of the air pocket in the stomach is the darkest.



Assignment problems:

- Design an algorithm for segmenting the 3D model of the stomach from a CT volume. Explain how and why your algorithm solves the problem.
- Design a performance measure for assessing the performance of your algorithm.