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Feature Extraction Using Connected Component Labeling

Abstract

Connected component labeling may be used as a relatively fast method to detect and extract features from images containing relatively homogeneous pixel values in a grayscale setting. By isolating regions in "blobs" of accepted detected regions, the blobs may have their data extracted and further analyzed to aid in verification of which extracted blob matches features sought by the user. In this poster we present a prototype application that implements connected component labeling to detect spinal region features from computer tomography (CT) images

Relevance

In the context of identifying "interesting" elements in an image, feature detection and extraction are widely used techniques in the areas of image processing and computer vision. The volume of image data in many domains is increasing significantly and having automated feature processing techniques has become a necessity. However, image processing techniques tend to be fairly complex to implement or require special libraries. Connected component labeling provides a relatively easy to comprehend and implement solution for feature detection and extraction. This work provides a self-contained and illustrative example that may serve as a baseline for those looking to further understand feature detection and extraction..