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Using Self Organizing Feature Maps for Automatic Prostate Segmentation in TRUS Images

Authors : Ahad Salimi, Hassan Masoumi

Abstract : Prostate cancer is one of the most common recognized cancers in men, and, is one of the most important mortality factors of cancer in this group. Determining of prostate's boundary in TRUS (Transrectal Ultra Sound) images is very necessary for prostate cancer treatments. The weakness edges and speckle noise make the ultrasound images inherently to segment. In this paper a new automatic algorithm for prostate segmentation in TRUS images proposed that include three main stages. At first morphological smoothing and sticks filtering are used for noise removing. In second step, for finding a point in prostate region, SOFM algorithm is enlisted and in the last step, the boundary of prostate extracting accompanying active contour is employed. For validation of proposed method, a number of experiments are conducted. The results obtained by our algorithm show the promise of the proposed algorithm.

Keywords : SOFM, preprocessing, GVF contour, segmentation
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