

Intraoperative treatment planning for permanent prostate brachytherapy has been known to improve implant quality (compared to pre-planning) and is recommended by the ABS. However, the discrepancy between the planned seed locations and the positions of the seeds that are actually deposited in the gland leads to differences between the planned dose and the dose actually delivered to the gland. The precise knowledge of the locations of the seeds deposited in the prostate would enable plan modification so as to minimize the difference between the dose delivered and the planned dose. Since treatment planning is typically performed using ultrasound as the imaging modality, it is of interest to explore the possibility of seed detection in the ultrasonic B-mode images. The goal of this work is to investigate and develop parameters that are capable of seed detection in ultrasonic B-mode images within the accuracy demanded. The parameters are based on information in the statistical moments, texture, median and the gradient. These parameters are found to exhibit different trends when the region of interest (ROI) contains a seed as opposed to no seed and are capable of detecting seeds in the image within an accuracy of +/- 1-2mm, which is essential for making any dosimetric corrections to the plan. The parameters therefore may hold potential for seed localization in ultrasonic B-mode images.