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## **A Novel SIFT-SVM Approach for Prostate Cancer Detection**

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### **Abstract**

Prostate cancer is a major cause of concern in male population as it is said to affect 1 in every 7 men in their lifetime. The number of cases being registered for prostate cancer and its mortality rates are increasing yearly at an alarming rate. Due to the high resolution and multi-dimensionality of the Magnetic Resonance Imaging (MRI) images, proper diagnostic system and tools are required. In this study, multiclass Support Vector Machines (SVM) classifier has been used, which is a well-known machine learning technique to classify the prostate images into 3 categories namely normal, benign and malign. This study has also made use of the Scale Invariant Feature Transform (SIFT) feature extraction method which is well known for its high rotation invariant nature. A SIFT-SVM approach has been introduced for the first time in prostate cancer detection. The performance of the system is computed in terms of sensitivity, specificity and accuracy. Our approach achieved high performance with an accuracy rate of about 99.95% when 40% of the training data was considered for obtaining our result.

### **Keywords:**

Prostate, Magnetic Resonance Imaging, Support Vector Machines, Scale Invariant Feature Transform

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