Automated Diagnosis of Prostate Cancer Location by Artificial Intelligence in multiparametric MRI

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Results

Purpose

AI-based automatic PCa* localization on mpMRI*

Materials and Methods

Dataset

Pre-biopsy 15 RRP* patients
3T MRI (Philips Japan)

Feature Extraction

Likelihood Maps

Superpixel Segmentation

Secondary SVM*

Primary SVM* converts MR images into likelihood maps describing cancer distribution.

Likelihood maps are segmented into cancerous or benign regions by superpixel method.

Secondary SVM* makes final diagnosis on each region according to texture and location feature.

Examples of AI-diagnosis (2 patients)

Conclusion

Combination of the two AI-based techniques, SVM* likelihood map and Superpixel method, is successfully applied to automatic PCa* localization on mpMRI*.

Introduction

Automatic PCa* localization enhances prostate biopsy performance

Limitations in systematic TRPB
Lower cancer detection rate leads to repeat biopsy

Worldwide shortage of Radiologists
Especially in developed countries

US, Japan, Germany, UK, Canada and Australia are below the average

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