Hybrid Registration of Corresponding Mammogram Images for Automatic Detection of Breast Cancer

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Abstract

Mammogram registration, a critical step in automated detection of breast cancer, is an ongoing research topic. The pectoral muscle is a few and apparent anatomical landmarks on mediolateral oblique (MLO) view mammograms. It provided an important control points for mammogram registration. If we can detect the boundary between the pectoral muscle and the breast tissue (PB-curve) automatically, and use these control points in the procedure of mammogram registration, the misalignment will be reduced caused by the pectoral muscle region. For that reason, in this paper, we propose a method for automatically detecting the pectoral muscle, and combined mutual information (MI), features extraction, features matching, and thin-plate splines (TPS) theories to develop a novel mammogram registration method.

Keyword：