

Pengolahan citra radiologi sinar-x menggunakan metode active contour untuk identifikasi kelainan pada-paru paru = Image processing of x-ray radiology using active contour method to identify abnormalities in lungs

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Abstrak

[ABSTRAK

Rontgen dada atau Chest X-Ray (CXR) merupakan salah satu aplikasi pencitraan medis yang paling sering digunakan dalam pendeteksian kelainan khususnya tumor pada paru – paru. Untuk menentukan diagnosis kelainan tersebut, seorang dokter masih mengandalkan pengamatan visual dalam pembacaan hasil citra CXR sehingga penilaian bersifat subyektif tergantung pada masing – masing dokter. Oleh karena itu, pada penelitian ini dilakukan perancangan sistem pengolahan citra sebagai alat bantu identifikasi kelainan paru – paru. Kategori citra CXR yang digunakan adalah citra pada keadaan normal, tumor, dan kelainan bukan tumor. Tahapan pengolahan yang dilakukan berupa pre-processing menggunakan median filtering dan ekualisasi histogram serta proses segmentasi menggunakan otsu's thresholding dan active contour : snake. Uji hasil pengolahan citra dengan hasil diagnosis dokter menggunakan jaringan syaraf tiruan backpropagation menghasilkan akurasi sebesar 92,85 %.

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ABSTRACT

Chest X-Ray (CXR) is a medical imaging applications that most commonly used for detects of abnormalities, especially tumors of the lung. To determine the abnormality diagnosis, doctors still rely on visual observations to read a CXR image, so that the assessments are subjective depending on each doctor. This study purposes to design an image processing system as a tool for identification of lung's abnormalities. It used three classification of CXR image, which are lungs image in normal circumstances, tumors, and abnormalities besides tumor. Stages of image processing are done in the form of pre-processing using a median filtering and histogram equalization and also the process of segmentation using Otsu's thresholding and active contour: snake. Test the image processing results with the results of the doctor's diagnosis using artificial neural network backpropagation produces an accuracy of 92,85 %., Chest X-Ray (CXR) is a medical imaging applications that most commonly used for detects of abnormalities, especially tumors of the lung. To determine the abnormality diagnosis, doctors still rely on visual observations to read a CXR image, so that the assessments are subjective depending on each doctor. This study purposes to design an image processing system as a tool for identification of lung's abnormalities. It used three classification of CXR image, which are lungs image in normal circumstances, tumors, and abnormalities besides tumor. Stages of image processing are done in the form of pre-processing using a median filtering and histogram equalization and also the process of segmentation using Otsu's thresholding and active contour: snake. Test the image processing results with the results of the doctor's diagnosis using artificial neural network backpropagation produces an accuracy of 92,85 %.]