Pendeteksian abnormalitas pada radiografi paru pasien dewasa dengan metode K-means clustering = Abnormalities detection in adult patients radiography image by K-means clustering method / Atina

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Abstrak

[ABSTRAK
Intensitas keabuan yang sangat dekat memungkinkan terjadinya kesalahan dalam menginterpretasikan citra hasil Computed Radiography (CR). Maka diperlukan algoritma yang dapat mempermudah tim medis mendiagnosa kondisi pasien khususnya bagian paru. Penelitian ini menggunakan tingkat keabuan /intensitas citra sebagai dasar clustering dan segmentasi Region of Interest (ROI) yang akan dilakukan dengan sistem komputerisasi. Sehingga hasil pembacaan lebih akurat dibanding secara manual. Data sampel berupa 100 citra hasil CR pasien paru dewasa Rumah Sakit Pusat Pertamina yaitu 50 citra norma sebagai citra acuan dan 50 citra uji (normal dan abnormal). Pada clustering diuji coba dengan jumlah cluster (k) bervariasi yaitu 3, 4, .., 10. Citra hasil clustering yang terbaik ditunjukkan pada k = 8 karena dapat memvisualisasikan batas warna dengan lebih jelas dibanding dengan k yang lain. Pada segmentasi ROI, citra paru dibagi menjadi 33 daerah sesuai posisi anatomi paru yang terdiri dari 6 daerah apex, 11 daerah hilum dan 16 daerah peripheral. Selanjutnya, masing-masing daerah pembagian diukur intensitasnya. Intensitas citra acuan dijadikan dasar untuk menentukan abnormalitas citra uji, intensitas citra uji yang lebih tinggi dari intensitas citra normal dikategorikan sebagai citra abnormal. Akurasi sistem pada penelitian ini adalah 66%.
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ABSTRACT
Gray intensity is very close to allow for errors in interpreting the Computed Radiography (CR) image. It would require an algorithm that can facilitate medical team to diagnose the patient's condition especially the lungs. Clustering k-means clustering and segmentation Region of Interest (ROI) will be done by a computerized system based on the image gray level / intensity. 100 CR image used as the sample data from Rumah Sakit Pusat Pertamina, 50 image as references images and 50 images as tested image. On clustering tested by the number of clusters (k) varies the 3, 4, .., 10. The clustering of the best image results are shown in k = 8 because it can visualize the color boundaries more clearly than the other k. At ROI segmentation, lung image is divided into 33 regions corresponding anatomical position lung consist of 6 regional apex, hilum area 11 and 16 peripheral areas. Furthermore, each regional division of the measured intensity. The intensity of the reference image used as the basis for

determining abnormality test images, test image intensity higher than normal image intensity categorized as abnormal image. The system accuracy in this study was 66%., Gray intensity is very close to allow for errors in interpreting the Computed Radiography (CR) image. It would require an algorithm that can facilitate medical team to diagnose the patient's condition especially the lungs. Clustering k-means clustering and segmentation Region of Interest (ROI) will be done by a computerized system based on the image gray level / intensity. 100 CR image used as the sample data from Rumah Sakit Pusat Pertamina, 50 image as references images and 50 images as tested image. On clustering tested by the number of clusters (k) varies the 3, 4, .., 10. The clustering of the best image results are shown in k = 8 because it can visualize the color boundaries more clearly than the other k. At ROI segmentation, lung image is divided into 33 regions corresponding anatomical position lung consist of 6 regional apex, hilum area 11 and 16 peripheral areas. Furthermore, each regional division of the measured intensity. The intensity of the reference image used as the basis for determining abnormality test images, test image intensity higher than normal image intensity categorized as abnormal image. The system accuracy in this study was 66%.]