

**DETEKSI PENYAKIT ALZHEIMER BERDASARKAN CITRA MRI
OTAK DENGAN EKSTRAKSI FITUR *GRAY LEVEL CO-
OCCURRENCE MATRIX* DAN METODE KLASIFIKASI NAIVE
BAYES**

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ABSTRAK

Alzheimer merupakan salah satu penyakit yang terjadi pada gangguan ingatan, Alzheimer seringkali terlambat untuk dideteksi, padahal jika penyakit ini didiamkan dalam waktu yang lama dapat menjadi parah bahkan dapat menyebabkan kematian. Seiring berkembangnya teknologi, saat ini Alzheimer dapat diatasi dengan menggunakan citra *magnetic resonance imaging*(MRI). Citra MRI inilah yang akan menjadi data pada penelitian ini. Citra MRI yang digunakan berjumlah 240 dengan pembagian 4 kelas, yaitu 60 citra non demented, 60 citra moderated demented, 60 citra mild demented, dan 60 citra very mild demented. Untuk mengambil fitur dari citra, digunakan metode ekstraksi fitur *gray level co-occurrence matrix*(GLCM) yang dengan angles 0, 45, 60, dan 90 serta fitur *dissimilarity, homogeneity, contrast, asm, energy, dan correlation*. Hasil GLCM ini berupa 24 fitur yang digunakan untuk klasifikasi. Untuk meningkatkan performa model klasifikasi dilakukan reduksi dimensi dengan metode *principal component analysis* yang menghasilkan 8 komponen fitur utama. Klasifikasi pada penelitian ini menggunakan metode Naïve Bayes. Klasifikasi naïve bayes menggunakan fitur hasil PCA menghasilkan akurasi sebesar 85%, precision sebesar 87%, dan recall sebesar 84%.

Kata kunci : *Grey level co-occurrence matrix, Magnetic resonance imaging, principal component analysis, Alzheimer.*

**DETECTION OF ALZHEIMER'S DISEASE BASED ON MRI IMAGES
OF THE BRAIN BY EXTRACTION OF GRAY LEVEL CO-
OCCURRENCE MATRIX FEATURES AND NAÏVE BAYES
CLASSIFICATION METHOD**

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ABSTRACT

Alzheimer's is one of the diseases that occurs in memory disorders, Alzheimer's is often too late to be detected, even though if this disease is silenced for a long time it can become severe and can even lead to death. As technology develops, Alzheimer's can now be overcome by using magnetic resonance imaging(MRI) images. This MRI image will be the data in this study. The MRI images used are 240 with a division of 4 classes, namely 60 non demented images, 60 moderated demented images, 60 mild demented images, and 60 very mild demented images. To retrieve features from the imagery, a gray level co-occurrence matrix(GLCM) feature extraction method with angles of 0, 45, 60, and 90 is used as well as dissimilarity, homogeneity, contrast, asm, energy, and correlation features. The results of this GLCM are in the form of 24 features used for classification. To improve the performance of the classification model, dimension reduction was carried out using the principal component analysis method with n as many as 8 main feature components. Classification in the study using the Naïve Bayes method. Naïve bayes classification using the PCA result feature results in an accuracy of 85%, a precision of 87%, and a recall of 84%.

Key words : *Grey level co-occurrence matrix, Magnetic resonance imaging, principal component analysis, Alzheimer.*