PENGENALAN WAJAH MENGGUNAKAN METODE *CONVOLUTIONAL NEURAL NETWORK-RESTRICTED BOLTZMANN MACHINE* BERBASIS *PRINCIPAL COMPONENT ANALYSIS*

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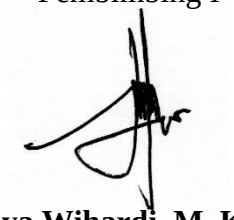

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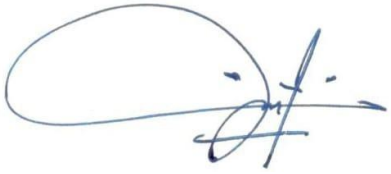

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ABSTRAK

Teknologi pengenalan wajah berpotensi untuk diterapkan pada berbagai bidang dalam kehidupan sehari-hari. Penelitian ini melakukan pengembangan teknologi pengenalan wajah dengan mengusulkan metode *Convolutional Neural Network-Restricted Boltzmann Machine* (CNN-RBM) berbasis *Principal Component Analysis* (PCA) menggunakan set data *Labeled Faces in the Wild* (LFW). CNN-RBM berbasis PCA memanfaatkan PCA sebagai pereduksi dimensi pada input, kemudian menggunakan CNN sebagai ekstraksi fitur, dan menggunakan RBM pada tahap klasifikasi wajah. Hasil eksperimen membuktikan bahwa CNN-RBM berbasis PCA mampu mengungguli *baseline* dengan peningkatan akurasi sebesar 1,6%.

Kata kunci: Pengenalan wajah; *deep learning*; *convolutional neural network*; *restricted boltzmann machine*; *principal component analysis*; *labeled faces in the wild*;

FACE RECOGNITION USING CONVOLUTIONAL NEURAL NETWORK-RESTRICTED BOLTZMANN MACHINE PRINCIPAL COMPONENT ANALYSIS BASED

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ABSTRACT

Face recognition technology can be applied in various fields of in everyday life. This research develops face recognition technology using Convolutional Neural Network-Restricted Boltzmann Machine (CNN-RBM) based on Principal Component Analysis (PCA) using labeled Faces in the Wild (LFW) set data*. PCN-based CNN-RBM uses PCA as a dimension reduction in input, then uses CNN as a feature extraction, and uses RBM in face classification. The experimental results prove that PCN-based CNN-RBM was able to outperform the baseline with 1,6% accuracy improvement.*

Keywords: face recognition; deep learning; convolutional neural network; restricted boltzmann machine; principal component analysis; labeled faces in the wild;

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