FACE RECOGNITION USING TWO-DIMENSIONAL
LINEAR DISCRIMINANT ANALYSIS AND
SUPPORT VECTOR MACHINE METHOD

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ABSTRACT

Biometric system become very popular and used widely on many sectors. One of biometric application that have been used is face recognition. The main two problem on face recognition is feature extraction process from face sample image and classification method that used for face classification that will be recognize base on choosen feature. Many feature extraction method use representation model based on vector that produce high dimension vectors. Face feature that can not be well extracted is caused by singular problem from high dimension vectors.

Two Dimensional Linear Discriminant Analysis (TDLDA) is used on this research for feature extraction, that evalutes directly the within class scatter matrix from the image matrix without image to vector transformation, and hence dilutes the singular problem of within class scatter matrix. For the optimal recognition result, Support Vector Machine (SVM) is used for classification. SVM will try to find the most optimal hyperplane and separate two class of pattern. This research will develops a face recognition application that combined Two Dimensional Linear Discriminant Analysis and Support Vector Machine. The combination of two methods give optimal results that have high accuracy of recognition between 84,18% until 100% with the ORL, YALE, and BERN database.

Key words : Linear Discriminant Analysis, Two Dimensional Linear Discriminant Analysis, Support Vector Machine