TABLE IX
SUMMARY OF THE RESEARCH RESULTS

Database	*References*	*Method*	*Percentage of correct classification(PCC)*	*Notes*
FERET	[31]	Eigenfeatures	95%	This method would be less sensitive to appearance changes than standard eigenface method. The DB contained 7,562 images of approximately 3,000 individuals.
	[28]	Eigenface	95% , 85% , 64% correct classifications averaged over lighting, orientation, and size variation, respectively.	DB contained 2,500 images of 16 individuals; the images include a large quality of background area.
	[42]	Graph matching	86.5% and 66.4% for the matching tests of 111 faces of 15 degree rotation and 110 faces of 30 degree rotation to a gallery of 112 neutral frontal views	
	[50]	Geometrical feature matching and Template matching	Template matching achieved 100% to 90% for Geometrical feature matching.	These two matching algorithms occurred on the same DB which contained 188 images of 47 individuals.
	[68]	SVM	Identification performance is 77.78% versus 54% for PCA. Verification performance is 93%versus 87% for PCA.	
	[70]	SVM + 3D morphable model	98%	Face rotation up to $\pm 36^0$ in depth.
	[71]	SVM+PC+LD	99% for verification and 98% for recognition.	DB contained 295 people.
AR	[61]	LEM	96.43%	DB contained frontal faces under controlled condition.
	[73]	SVM+PCA SVM+ICA	92.67% 94%	SVM was used only with polynomial (up to degree 3) and Guassian kernel.
Yale	[73]	SVM+PCA SVM+ICA	99.39% 99.39%	DB contained 165 images of 15 individuals. The DB divided into 90 images (6 for each person) for training and 75 for testing (5 for each person)
	[81]	Build face recognition committee machine (FRCM) of Eigenface, Fisherface, Elastic Graph Matching (EGM), SVM, and Neural network	FRCM gives 86.1% and it outperforms all the individuals on average	1) They adopt leaving-one-out cross validation method. 2) Without the lighting variations, FRCM achieves 97.8% accuracy.
	[82]	Combines holistic and feature analysis-based approaches using a Markov random field (MRF) method	96.11 (when using 5 images for training and 6 for testing)	They tested the recognition accuracy with different numbers of training samples. $K(k=1,2,\ldots 10)$ images of each subject were randomly selected for training and the remaining 11-*k images* for testing
	[83]	Boosted parameter-based combined classifier	99.5%	The DB is divided into 75 images (5 for each person) for training and 90 for testing (6 for each person)
ORL	[37]	Hybrid NN: SOM+a convolution NN	96.2%	DB contained 400 images of 40 individuals. The classification time less than .5 second for recognizing one facial image, but training time is 4 hours.
	[44]	Hidden Markov model (HMMs)	87%	
	[44]	A pseudo 2DHMM	95%	Its classification time and training time were not given (believe to be very expensive.)
	[76]	SVM with a binary tree	91.21% for SVM and 84.86% for Nearst Center Classification (NCC)	They compare the SVMs with standard eigenface approach using the NCC
	[72]	Optimal-Pairwise coupling (O-PWC) SVM	PWC achieved 95.13% , O-PWC (cross entropy) achieved 96.79% and O-PWC (square error) achieved 98.11%	They select 200 samples (5 for each individual) randomly as training set. The remaining 200 samples are used as the test set.
	[75]	Several SVM+NN arbitrator	97.9%	An average processing time of .22 second for face pattern with 40 classes. On the same DB, PCC for eigenfaces is 90% and for pseudo-2D HMM is 95% and for convolutional NN is 96.2%
	[28]	Eigenface	90%	
	[39]	PDBNN	96%	PDBNN face recognizing up to 200 people in approximately 1 second and the training time is 20 minutes.
	[80]	A combined classifier uses the generalization capabilities of both Learning Vector Quantization (LVQ) and Radial Basis Function (RBF) neural networks to build a representative model of a face from a variety of training patterns with different poses, details and facial expressions	99.5%	A new face synthesis method is implemented for reducing the false acceptance rate and enhancing the rejection capability of the classifier. The system is capable of recognizing a face in less than one second.