

	A Corrector for the Sample Mahalanobis Distance Free from Estimating the Population Eigenvalues of Covariance Matrix
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	To correct the effect deteriorating the recognition performance of the sample Mahalanobis distance by a small number of learning sample, a new corrector for the sample Mahalanobis distance toward the corresponding population Mahalanobis distance is proposed without the population eigenvalues estimated from the sample covariance matrix defining the sample Mahalanobis distance. To omit computing the population eigenvalues difficult to estimate, the corrector uses the Stein's estimator of covariance matrix. And the corrector also uses accurate expectation of the principal component of the sample Mahalanobis distance by the delta method in statistics. Numerical experiments show that the proposed corrector improves the probability distribution and the recognition performance in comparison with the sample Mahalanobis distance.
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