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Identity Verification Using k-NN Classifiers and Autistic Genetic Data

Authors : Fuad M. Alkoot

Abstract : DNA data have been used in forensics for decades. However, current research looks at using the DNA as a biometric identity verification modality. The goal is to improve the speed of identification. We aim at using gene data that was initially used for autism detection to find if and how accurate is this data for identification applications. Mainly our goal is to find if our data preprocessing technique yields data useful as a biometric identification tool. We experiment with using the nearest neighbor classifier to identify subjects. Results show that optimal classification rate is achieved when the test set is corrupted by normally distributed noise with zero mean and standard deviation of 1. The classification rate is close to optimal at higher noise standard deviation reaching 3. This shows that the data can be used for identity verification with high accuracy using a simple classifier such as the k-nearest neighbor (k-NN).

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