

INVESTIGATIONS ON DISCRIMINATIVE OPTIMAL FEATURE SELECTION TECHNIQUES FOR HAND BASED BIOMETRIC RECOGNITION

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Biometric technologies are currently widely used in society, with applications such as identity and access management, eavesdropping, security systems, social and welfare management, and automatic border control being used directly or indirectly by billions of people. Individuals can be distinguished using biometrics based on their distinctive physical characteristics and behavioural attributes for automated identification verification. The COVID-19 pandemic, which has been ravaging the planet since early 2020, is being caused by the novel SARS-Co-V2 coronavirus. The study focuses on the impact of the COVID-19 pandemic on biometric identification. Researchers are interested in hand-based contactless biometrics because they are practical and user-friendly. Consequently, the cost of the device is decreased because both features are generated from a single image. There is probably also a decrease in detecting imprecision. This study uses contactless finger vein and finger knuckle biometrics to build an effective biometric recognition system. The processes that are involved in Finger knuckle Print (FKP) and Finger vein (FV) biometric authentication are feature extraction, fusion, feature selection, and classification. The proposed two-way multi-algorithm feature extraction techniques, such as the appearance-based technique and texture-based algorithm, are used to obtain the feature vectors from the FKP and FV images in order to increase the efficiency of the feature extraction algorithms. Principal Component Analysis (PCA), Linear Discriminant Analysis (LDA), and their combinations are proposed for extracting feature vectors for FKP and FV.