Enhancing Performance of Multibiometric System using Ant Colony Optimization based on Score Level Fusion

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Abstract

Unimodal biometric systems have several inherent problems such as intra-class variation, noisy-sensor data, spoofing attacks and non-universality. To overcome this limitation multibiometric is a good option where we can use two or more individual modalities. In this paper we propose a multibiometric system to enhance the performance and minimize the error rate using Ant colony optimization (ACO) based on score level fusion. This work extracts the feature from two different modalities namely face and iris (left/right). In this work we use ACO as an optimization technique to select the fusion parameter like weights for the different biometric matcher and fusion rule which is used further for score level fusion. The experimental results show that the multibiometric system using ACO based on sum rule is outperform than the other fusion rule like product, tanh and exponential sum.

References

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Index Terms

Computer Science  Artifical Intelligence

Keywords

Unimodal, multibiometric, ant colony optimization, fingerprint, iris, particle swarm optimization, score level fusion.