Optimization using Bio-inspired algorithm: Intelligent Waterdrop Algorithm

Abstract

Nature inspired algorithms are Meta heuristics, these are used for solving the optimization problem. IWD is one of the best algorithms which contain Swarm intelligence is one of the closest field in nature inspired algorithms. IWD is based on behavior of water drops, which has been inspired from natural rivers. The process that happens in nature between the water drops of a river and the soil of the river bed. It is used to find the optimal solutions or paths from source to destination. In this work, offline signature and speech verification is combined which is widely used. For feature extraction in speech MFCC is used and in signature Gabor filters are used which is widely used for image and texture. Then, IWD is applied on the extracted features and fuse the optimized features of both modalities by using the average rule. Here, SVC2004 signature database is used for experimental results. Testing phase consists of 80 (signature and speech) sample in which 60 samples are genuine and 20 are forgeries. The accuracy of the noiseless system is 100% with 0% of FAR and FRR and accuracy of the noisy system is 99.87% with FAR 0.025% and FRR 0.1%.
- Sridhar, S. , Kumar, Rajesh, P. , and Ramanaiah, V. , K. , "Wavelet Transform

**Index Terms**

**Computer Science**  
**Algorithms**

**Keywords**

Intelligent Waterdrop Algorithm  
Gabor Filters  
MFCC  
Average function.