

## Application of Hybrid Honey Bees Mating Optimization Algorithm in Multiuser Detection of Wireless Communication Systems

**Authors :** N. Larbi, F. Debbat

**Abstract :** Wireless communication systems have changed dramatically and shown spectacular evolution over the past two decades. These radio technologies are engaged in a quest endless high-speed transmission coupled to a constant need to improve transmission quality. Various radio communication systems being developed use code division multiple access (CDMA) technique. This work analyses a hybrid honey bees mating optimization algorithm (HBMO) applied to multiuser detection (MuD) in CDMA communication systems. The HBMO is a swarm-based optimization algorithm, which simulates the mating process of real honey bees. We apply a hybridization of HBMO with simulated annealing (SA) in order to improve the solution generated by the HBMO. Simulation results show that the detection based on Hybrid HBMO, in term of bit error rate (BER), is viable option when compared with the classic detectors from literature under Rayleigh flat fading channel.

**Keywords :** BER, DS-CDMA multiuser detection, genetic algorithm, hybrid HBMO, simulated annealing

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