Abstract

The new generations of networks are sensor networks which typically consist of a large number of nodes that are connected wirelessly. The main idea of these types of networks is collecting data around the network’s sensors. Since the sensors nodes work with the battery and there is no possibility to change or recharge these batteries, the life time of these networks depends on the sensors energy. The purpose of this study is, improved Harmony Search algorithm with using Ant Colony Optimization Algorithm to determine the basic paths to harmony memory is initialized for increase the life time of the network. For this purpose, an algorithms have been proposed named by ACO-HS also important conditions such as appropriate distribution of energy consumption between sensors nodes leading to increasing life time of the networks, is considered. The simulation results show the capability of the proposed algorithm in finding the Proper path and establishment appropriate balance in the energy consumed by the nodes. Propose algorithm is better than Harmony Search algorithm and Ant Colony Optimization and Genetic Ant Algorithm.
References

- Dorigo, M.; "Learning and Natural Algorithms"; PHD Thesis; Department of Electronics; Politecnico di Milano; Italy, 1992.
- Hoang, DC; Yadav, P.; Kumar, R.; Panda, SK.; "A Robust Harmony Search Algorithm Based Clustering Protocol for Wireless Sensor Networks"; IEEE International Conference on Communications Workshops (ICCW); 2010, 1-5.
- Manjarres, D.; Ser, JD; Lopez, SG; Vecchio, M.; Torres, IL; Valcarce, RL.; "On the Application of a Hybrid Harmony Search Algorithm to Node Localization in Anchor-based Wireless Sensor Networks"; International Conference on Intelligent System Design and Application (ISDA); 2011, 1014-1019.
- Nehra, NK; Kumar, M; Patel, RB.; "Neural Network Based Energy Efficient Clustering and Routing in Wireless Sensor Networks"; First International Conference on Networks and Communications; 2009, 34-39.
- Dong, W; Ke, Z; Chen, N; Sun, Q.; "QoS Routing Algorithm for Wireless
Multimedia Sensor Networks; 4th International Symposium on Advances in Computation and Intelligence; 2009, 512-524.

Index Terms

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