Multi-objective Optimization Modeling of Interference in Home Health Care Sensors

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Health monitoring system has been an important application in the last decade. There are many types of health sensors that make this system worth and real like wearable sensor, bed sensor and ECG sensor. Primarily, these sensors operate on the license-free 2.4-GHz industrial, scientific, and medical band (ISM). This feature makes this system not only easily applicable, but also probably vulnerable to intrusion and interference by other appliances that works on this band like Wi-Fi and microwave oven. In this paper we introduce and discuss the modeling of a multi objective problem with consideration on the aspects that affect these models. We try to maximize energy efficiency and packet throughput. The work has been tested using three evolutionary algorithms: SPEA-II, NSGA-II and OMOPSO.

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