Optimization of user comfort index for ambient intelligence using dynamic inertia weight artificial bees colony optimization algorithm

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ABSTRACT

Ambient intelligence (AmI) aims to bring intelligence to human daily lives and making the environment more sensitive and comfortable by applying computational intelligence, sensors and sensors networks. The occupant's comfort can be measured using the user comfort index. A user comfort index in an indoor environment can be affected by the temperature of the room, the illumination of the lighting and the indoor air quality. In this work, these parameters are optimized using dynamic inertia weight artificial bees colony (DIW-ABC) optimization algorithm. The inertia weight in DIW-ABC controls the exploration and exploitation of the colony. The findings show that the DIW-ABC achieved better performance than the original ABC. The optimized parameter can be feed to a controller to provide a room with ambient intelligence.

KEYWORDS

Ambient intelligence; Artificial bees colony; Inertia weight; User comfort index

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