A novel Artificial Bee Colony algorithm for global optimization

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Artificial Bee Colony (ABC) algorithm is a swarm-based optimization algorithm with advantages like simplicity and proper exploration ability. However, it suffers from improper exploitation in solving complicated problems. In order to overcome this disadvantage, modifications on all three bee types

are proposed. By introducing a new procedure for the scout bees and modifying the search patterns of both employed and onlooker bees, the capabilities of all three bee types are utilized properly. These modifications lead to better exploitation and exploration abilities. Experiments are conducted on 12 different benchmark functions including standard, shifted, rotated, and shifted-rotated multimodal problems. The results confirm the superiority of the proposed algorithm compared with some other well-known algorithms in this field.

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