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Title	A two-phase quasi-affine transformation evolution with feedback for parameter identification of photovoltaic models
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Abstract	<p>Metaheuristic algorithm is a prestigious technique for solving optimization problems. QUATRE is a simple but powerful algorithm. However, QUATRE also shows premature convergence and is easily trapped in local optima for complex optimization problems. This work presents a novel algorithm named two-phase QUasi-Affine Transformation Evolution with feedback (tfQUATRE). The proposed tfQUATRE is an enhanced quasi-affine transformation evolution algorithm. In tfQUATRE, a two-phase approach is introduced to improve the exploration and exploitation abilities by adjusting the search tendency at different phases. Moreover, the historical population is employed for the feedback approach to guide the search towards promising areas to maintain population diversity, which boosts the exploration ability. The comprehensive performance of tfQUATRE is evaluated in the simulations. First, the performance of tfQUATRE is evaluated under the CEC2017 test suite. The simulations prove that tfQUATRE is superior to 12 state-of-the-art algorithms. In addition, tfQUATRE is applied to extract the parameters of photovoltaic (PV) systems in real application. The experimental results confirm that the proposed tfQUATRE is more competitive than 17 recent counterparts.</p>