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# Upgraded Cuckoo Search Algorithm to Solve Optimisation Problems Using Gaussian Selection Operator and Neighbour Strategy Approach

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**Abstract :** An Upgraded Cuckoo Search Algorithm is proposed here to solve optimization problems based on the improvements made in the earlier versions of Cuckoo Search Algorithm. Short comings of the earlier versions like slow convergence, trap in local optima improved in the proposed version by random initialization of solution by suggesting an Improved Lambda Iteration Relaxation method, Random Gaussian Distribution Walk to improve local search and further proposing Greedy Selection to accelerate to optimized solution quickly and by “Study Nearby Strategy” to improve global search performance by avoiding trapping to local optima. It is further proposed to generate better solution by Crossover Operation. The proposed strategy used in algorithm shows superiority in terms of high convergence speed over several classical algorithms. Three standard algorithms were tested on a 6-generator standard test system and the results are presented which clearly demonstrate its superiority over other established algorithms. The algorithm is also capable of handling higher unit systems.

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