

## **Raccoon optimization algorithm**

### **ABSTRACT**

Population-based meta-heuristic is a high-level method intended to provide sufficient solution for problems with incomplete information among a massive volume of solutions. However, it does not guarantee to attain global optimum in a reasonable time. To improve the time and accuracy of the coverage in the population-based meta-heuristic, this paper presents a novel algorithm called the Raccoon Optimization Algorithm (ROA). The ROA is inspired by the rummaging behaviours of real raccoons for food. Raccoons are successful animals because of their extraordinarily sensitive and dexterous paws and their ability to find solutions for foods and remember them for up to three years. These capabilities make raccoons expert problem solvers and allow them to purposefully seek optimum solutions. These behaviours exploited in the ROA to search the solution spaces of nonlinear continuous problems to find the global optimum with higher accuracy and lower time coverage. To evaluate the ROA's ability in addressing complicated problems, it has been tested on several benchmark functions. The ROA is then compared with nine other well-known optimization algorithms. These experiments show that the ROA achieves higher accuracy with lower coverage time.

**Keyword:** Raccoon Optimization Algorithm (ROA); Non-linear continuous optimization problems; Structural Optimization; Evolutionary Algorithm; Meta-heuristic algorithm