Spider Monkey Optimization

(SPO)

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Spider Monkey Optimization

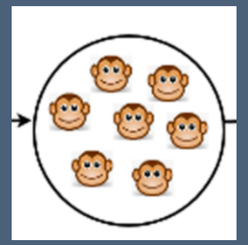
SPO

- Social animals and live in group of up to 50 individuals.
- Break up into small foraging groups that travel together and forage throughout the day within a core area of the larger group’s home range.
- Group leader and Global leader
- Communicate in long distance, own discernible sound to identify.

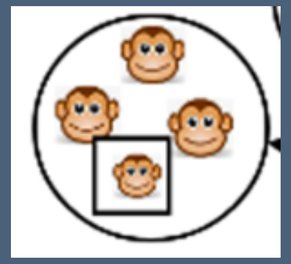
Spider Monkey Optimization

Goal: Find the place with most food(Optimal)

Initialize



Local Leader phase

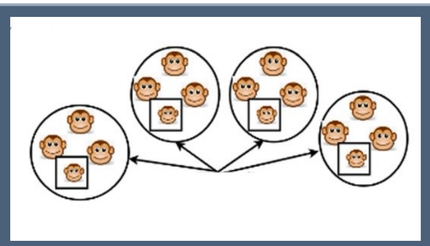


Global Leader Phase

Update Leaders

Local decision

Global decision

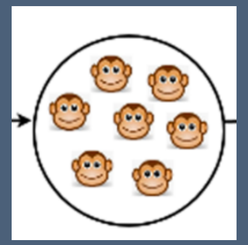


Go to new place

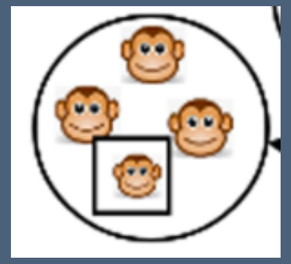
Constrain Problems

Penalty method

Initialize



Local Leader phase



Global Leader Phase

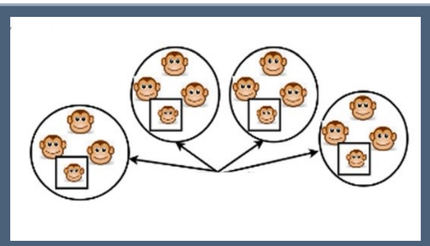
Update Leaders

Based on Fitness

Local decision

Go to new place

Global decision



Code demo

The code and results are available on https://github.com/GhostBlue32/Algorithm-For-Op

- Aluffi-Pentini function $f(x,y) = \frac{x^4}{4} - \frac{x^2}{2} + \frac{x}{10} + \frac{y^2}{2} + \frac{e^x}{5}$ $-5 \le x, y \le 5$, (-1.07, 0)
- RosenBrock $f(x,y) = (1.1 - x)^2 + 50(y - x^2)^2$

Reference

- Bansal, Jagdish Chand, Harish Sharma, Shimpi Singh, S. Jadon, and Maurice Clerc. “Spider Monkey Optimization Algorithm for Numerical Optimization.” Springer Journal of Numerical Optimization, 2014.
- Selvarajan, Shitharth. “A comprehensive study on modern optimization techniques for engineering applications.” Published online 4 July 2024.

Thank you

- Question time