

Monkeying about to solve problems

19 December 2019, by David Bradley



Dusky Titi Monkey (*Callicebus brunneus*). Credit: Wikipedia

There are countless computer algorithms that simulate biological behavior from leaping frogs, to bat foraging, from cuckoo search to ant colony optimization. They all have something in common, the algorithm behaves like a collective intelligence, taking on the call and response of a shoal of fish or a murmuration of starlings, and all those other patterns in nature. Writing in the *International Journal of Swarm Intelligence*, a team from India discusses the state of the art in a unique algorithm based on a biological system—the spider monkey.

Spider monkeys have a "fusion-fission" [social](#)

[structure](#) where a large social group will split into smaller hordes or vice versa depending on the accessibility and availability of food. Janmenjoy Nayak of Aditya Institute of Technology and Management in Andhra Pradesh, India, and colleagues have looked at the spider monkey optimization algorithm, which embeds this behavior to allow it to solve otherwise intractable problems. SMO algorithms are, the team reports, particularly useful in solving electrical and electronic engineering, wireless sensor network, pattern recognition, power system and networks, and data mining problems.

Their survey of the state of the art in SMO and its variants and how it can successfully deal with difficult authentic world optimization problems should serve to inspire practitioners and researchers to innovate in this area even more. Moreover, the success of the SMO hints at the potential of different behavior in other species such as [squirrel monkey](#), vervet monkey, and proboscis monkey, that might also be simulated to good effect.

More information: Janmenjoy Nayak et al. Spider monkey optimisation: state of the art and advances, *International Journal of Swarm Intelligence* (2019). [DOI: 10.1504/IJSI.2019.104094](https://doi.org/10.1504/IJSI.2019.104094)

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