

New algorithm based on the behavior of gulls improves edge computing

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While the enthusiasm for cloud computing has not blown over, there are adjuncts to the services it provides that have already come over the horizon to bring certain aspects of "cloud" closer to the user—so-called

edge computing. By bringing certain resources closer to the user's own computer, edge computing can improve performance and reduce lag, or latency, between user command and system response. However, increasing demands on edge services mean that their great promise might not be fulfilled in an increasingly connected and mobile world.

Feilong Yu, Jing Li, Ming Zhu, and Xiukun Yan of the College of Computer Science and Technology at Shandong University of Technology in Zibo, China, have proposed a service-selection model the cloud and edge-computing environments. "The proposed model combines the seagull optimization algorithm and the simulated annealing algorithm," the team explains. The seagull algorithm encodes the migratory and attack behavior of gulls in such a way that it can be used to solve problems such as the assigning and routing of computational resources. The use of the simulated annealing algorithm in conjunction with the seagull [algorithm](#) will help the system avoid the local maximum and premature convergence problems, which are often the bane of other approaches to similar problems.

The team has carried out comparative experiments on simulated datasets with referencing to some other service selection models and have demonstrated that the proposed selection model improves QoS (Quality of Service) and requires fewer iterations. Such a boost to edge computing will improve the performance of software and applications that utilize natural-language processing, [facial recognition](#), and video processing all of which are what the team describes as "delay-sensitive and demand-intensive."

The next step is to demonstrate proof of principle with a real-world setup and then to optimize the approach in terms of minimizing [energy consumption](#) to address the issues of processing [energy requirements](#), idle power, and leakage of power.

More information: Xiukun Yan et al, Using seagull optimisation algorithm to select mobile service in cloud and edge computing environment, *International Journal of Web Engineering and Technology* (2022). [DOI: 10.1504/IJWET.2022.10049995](https://doi.org/10.1504/IJWET.2022.10049995)

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