

Article

EEGO: an extended version of Eel and Grouper optimizer for global optimization problems

Glykeria Kyrou¹, Vasileios Charilogis² and Ioannis G. Tsoulos^{3,*}

¹ Department of Informatics and Telecommunications, University of Ioannina, 47150 Kostaki Artas, Greece; g.kyrou@uoi.gr

² Department of Informatics and Telecommunications, University of Ioannina, 47150 Kostaki Artas, Greece; v.charilog@uoi.gr

³ Department of Informatics and Telecommunications, University of Ioannina, 47150 Kostaki Artas, Greece; itsoulos@uoi.gr

* Correspondence: itsoulos@uoi.gr

Abstract: The problems of finding a global minimum of a function are increasingly applied to real-world problems. As a result, a variety of computational techniques have been developed to better locate the global minimum. A decisive role is played by evolutionary techniques, which simulate natural processes and aim to find the global minimum of multidimensional functions. A recently introduced evolutionary technique is the optimal Eel and Grouper (EGO) algorithm, which is inspired by symbiotic interaction and foraging strategy of eels and groupers in marine ecosystems. The EGO algorithm is characterized for its reliability in locating the global minimum. In this paper, modifications are proposed that aim to improve the reliability and speed of the above technique, such as the application of a termination technique based on stochastic observations. The proposed method was tested on several problems from the relevant literature and a comparative study was made with other global optimization techniques with promising results.

Keywords: Global optimization; Stochastic techniques; Evolutionary methods; Swarm based methods

Citation: Kyrou, G.; Charilogis, V.; Tsoulos, I.G. EEGO: an extended version of Eel and grouper optimizer for global optimization problems. *Journal Not Specified* **2024**, *1*, 0. <https://doi.org/>

Received:

Revised:

Accepted:

Published:

Copyright: © 2024 by the authors. Submitted to *Journal Not Specified* for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).