

Review of: "A Probability-Based Algorithm for Evaluating Climbing Difficulty Grades"

Nasser Khalili¹

¹ Sharif University of Technology

Potential competing interests: No potential competing interests to declare.

The article presents a well-developed idea and is written effectively. However, I have a couple of suggestions regarding the mathematical model section:

1. In section II-F, you mention that "The number of elements in the dataset is small compared to typical machine learning problems [18-19], but here, the number of parameters of the model is small and it does not seem necessary to use datasets with thousands or millions of elements". It's important to consider that meta-heuristic algorithms are sensitive to the number of samples, and having an adequate number of samples is crucial for achieving the global optimum. Without a sufficient sample size, there is a risk of being trapped in a local optimum. If you believe that the parameter values obtained are the global optimal values, I would suggest performing a sensitivity analysis by slightly varying the parameters two by two (for example, between 0 and 5%) and plotting the resulting changes in the cost function. This analysis will help determine if the obtained parameter values are truly global optimal.
2. Additionally, it would be beneficial to provide a brief explanation of the JAYA algorithm and include the number of swarms and termination criterion used in the algorithm.

These suggested revisions will enhance the clarity and completeness of the mathematical model section.