World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:17, No:05, 2023

# Intrusion Detection in Computer Networks Using a Hybrid Model of Firefly and Differential Evolution Algorithms

**Authors :** Mohammad Besharatloo

**Abstract :** Intrusion detection is an important research topic in network security because of increasing growth in the use of computer network services. Intrusion detection is done with the aim of detecting the unauthorized use or abuse in the networks and systems by the intruders. Therefore, the intrusion detection system is an efficient tool to control the user's access through some predefined regulations. Since, the data used in intrusion detection system has high dimension, a proper representation is required to show the basis structure of this data. Therefore, it is necessary to eliminate the redundant features to create the best representation subset. In the proposed method, a hybrid model of differential evolution and firefly algorithms was employed to choose the best subset of properties. In addition, decision tree and support vector machine (SVM) are adopted to determine the quality of the selected properties. In the first, the sorted population is divided into two sub-populations. These optimization algorithms were implemented on these sub-populations, respectively. Then, these sub-populations are merged to create next repetition population. The performance evaluation of the proposed method is done based on KDD Cup99. The simulation results show that the proposed method has better performance than the other methods in this context.

**Keywords :** intrusion detection system, differential evolution, firefly algorithm, support vector machine, decision tree
**Conference Title :** ICICS 2023 : International Conference on Information and Computer Sciences
**Conference Location :** Vancouver, Canada
**Conference Dates :** May 22-23, 2023