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**Hybrid Optimization Scheme for Intrusion Detection Using Considerable Feature Selection**

S. Velliangiria ,**P. Karthikeyanb**

a. Department of Computer Science and Engineering, CMR Institute of Technology, Hyderabad, Telangana, India

**b.** Department of Computer Science and Engineering, Presidency University, Bengaluru, 560064,India

**Abstract**

The intrusion detection is an essential section in network security because of its immense volume of threats which bothers the computing systems. The real-time intrusion detection dataset comprises redundant or irrelevant features. The duplicate features make it quite challenging to locate the patterns for intrusion detection. Hybrid optimization scheme (HOS) is designed for combining adaptive artificial bee colony (AABC) with adaptive particle swarm optimization (APSO) for detecting intrusive activities. The schemes are aggregated for locating improved optimization-based outcomes, and the precision during categorization is acquired using tenfold cross-validation scheme. The main objective of the proposed method is to improve the rate of precision in intrusion activities in internetwork by choosing the relevant features. Effectiveness of the hybrid categorization scheme is accessed using an NSL-KDD dataset. Single feature selection method and random feature selection method are used to assess the proposed HOS intrusion detection approaches. The effectiveness of the designed scheme is evaluated with existing machine learning schemes such as Naive Bayes, AABC, APSO, and support vector machine, which outperform the HOS.

**Keywords:**

Intrusion detection, AABC, APSO, Support vector machine, Hybrid optimization scheme

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