نویسنده:

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خلاصه مقاله:

In computer networks, introducing an intrusion detection system with high precision and accuracy is considered vital. In this article, a proposed model using a deep learning algorithm is presented and its results are analyzed. To evaluate the performance of this algorithm, NSL-KDD, CIC-IDS ۲۰۱۸, UNSW-NB۱۵ and MQTT datasets have been used. The evaluation criteria include precision, accuracy, F۱ score, and, readability. The new approach uses a hybrid algorithm that includes a convolutional neural network (CNN) to extract general features and long-short-term memory (LSTM) to extract periodic features that are in the form of a layer. are cross-connected, it is introduced to detect penetration. This algorithm showed the highest known accuracy of ۹۹% on the NSL-KDD dataset. It has reached ۹۷% in all criteria in UNSW-NB۱۵, ۹۶% in all criteria in CIC-IDS ۲۰۱۸, and also, in MQTT for three abstraction levels of features, i.e. packet-based flow features, unidirectional flow, and The two-way flow has reached above ۹۷%, which shows the superiority of this algorithm.

کلمات کلیدی:

Internet of Things, Intrusion Detection System, Hybrid system, Deep Learning Introduction