**Paper No: PU-SOE-CSE-35**

**Detection of Distributed Denial of Service Attack in Cloud Computing Using the Optimization-Based Deep Networks**

S.Velliangiria, **P.Karthikkeyanb,** V.Vinoth Kumarc

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

b. Department of Computer Science & Engineering, Presidency University, Bangalore, India

c. Department of Computer Science & Engineering, MVJ College of Engineering, Bangalore, India

**Abstract**

Cloud computing services provide a wide range of resource pool for maintaining a large amount of data. Cloud services are commonly used as the private or public data forum based on the demand, and the increase in usage has lead to security concerns. The information in the cloud comes under threat due to hackers, and the most common attack on the cloud data is considered as the Distributed Denial of Service (DDoS) attack. This work has concentrated on detecting the DDoS attack by developing the deep learning-based classifier. The service request from the users is collected and grouped as the log information. From the log file, some important features are selected for the classification using the Bhattacharya distance measure to reduce the training time of the classifier. Here, Taylor-Elephant Herd Optimisation based Deep Belief Network (TEHO-DBN), is developed by modifying the Elephant Herd Optimisation (EHO) with the Taylor series and the algorithm thus developed is adopted to train the Deep Belief Network (DBN) for the DDoS attack detection. From the simulation results, it can be concluded that the proposed TEHO based DBN classifier has improved performance with a maximum accuracy of 0.830.

**Keywords:**

[Cloud computing](https://www.tandfonline.com/keyword/Cloud+Computing), [DDoS attack](https://www.tandfonline.com/keyword/Ddos+Attack), [log file](https://www.tandfonline.com/keyword/Log+File), [Bhattacharya distance](https://www.tandfonline.com/keyword/Bhattacharya+Distance), [deep belief network](https://www.tandfonline.com/keyword/Deep+Belief+Network)

**Publication Details:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal Name** | **Vol.** | **Month & Year** | **Page No.** | **Publisher** | **Scimago Ranking** |
| Journal of Experimental & Theoretical Artificial Intelligence | 33 | April, 2020 | 1-20 | Taylor & Francis | Q2 |