



Special Issue on Advanced Network Security: Methods and Applications

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In the modern era of connectivity and communication, Network security is very important and plays a vital role in information safety and security. This is a broad domain comprising hardware and software solutions that protect accessibility and intrusion protection using different configurations and solutions. Network security evolves around different protocols, viruses, antiviruses, software, security protocols, and applications for network security. Security of the network protects information and data shared by users between different network modules. Several network security applications are adopted like firewalls, network segmentation, remote access protocol, zero-trust network access, remote access VPN, and email security.

Fuzzy algorithm-based encryption is proposed to indemnify the network delays [1]. The proposed encryption algorithm is created for the information management of electronic commerce using vector quantification and channel equilibrium encryption for data transmission. Transmission delays are compensated using bit sequence combination and data transfer is performed using a combination of symbol technology. The implanted technique to handle transmission delays of e-commerce data proved to be robust with less buffering and errors.

A chaos algorithm was implanted by researchers for several digital image encryption [2]. Discrete cosine transformation (DCT) is utilized with the sparse transformation of plaintext images and logical reconstruction for the cyclic matrix. DCT based grey images are created by merging different digital images. Later, ciphered texted images obtained using a combination of logistic maps and Lorenz chaotic algorithm and plaintext features are extracted from images using pixel position change, image diffusion, and image pixel values replacement. The proposed technique robustly

encrypted different types of images with the highest level of security.

A symmetric encryption technique was presented for the multi-channel association data clustering [3]. Data acquisition was performed using the baud equalization sampling technique. Fuzzy data was extracted from the data acquired using data generalization and the most relevant data was selected. The range of data queries is reduced using symmetric encryption techniques. The extracted data comprises multi-source data association which is computed using Centro symmetry similarity measurement. The presented encryption method can predict different sorts of data clustering with higher accuracy and competitive results.

In [4] multi-track segmentation network, a security and intrusion recognition and detection approach based on fuzzy reasoning had been presented. The probability of security estimation had been predicted by creating an attack environment in the segmentation network. The security of a multi-track segmented network was analyzed by fusing density features fuzzy reasoning. The rate of infection in the segmentation of multi tracks-based network features utilized to predict the security and virus intrusion. The presented achieved a higher success rate in computing the probability of security and intrusion prediction in multi-rail segmentation networks and plays a vital role in the enhancement of multi-track segmentation network security.

In [5] oral English intelligent evaluation system based on DTW had been presented. BTW technique is utilized for the evaluation of spoken English to develop the English intelligent evaluation system. The DTW-based assessment system comprises hardware components: an audio acquisition unit, a microprocessor chip unit, and a memory module. The software module contains a speech processing, recognition, and evaluation unit. The presented hardware and software-based evaluation system proved its robustness by attaining accuracy of 65.63%-76.58% in 8.23 ms-13.57 ms which depict the robustness of the proposed evaluation system.

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In [6] Fuzzy clustering-based verification approach had been presented for data transmission, encryption, and maintenance. The IT operations are performed by assigning them a specific key. Quantitative encoding and clustering were performed using the fuzzy clustering method. Quantum evolutionary coding technique incorporated with fuzzy clustering method for encryption of IT operations and maintenance. The simulation results of the proposed technique showed the robustness of the system in encryption, transmission, and attack identification.

In paper [7] Artificial fish swarm algorithm (AFS) is based on 13 parallel AFS methods using data bits expansions of ternary optical computer (TOC). Traditional 15 AFS utilized for the derivation of parallel design. The parallel port was implanted on 16 clock cycles. The presented approach was validated using 17 parallel experiments using SD11. TOC-based parallel 18 AFSs achieved competitive search performance as compared to parallel and serial-based AFSs. A notable search time reduction was observed and a visible 19 selection outcomes of complex model selection and optimization problems.

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