



King Saud University  
**Journal of King Saud University –  
 Computer and Information Sciences**

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## Message from the Editor



*Dear Readers,*

After becoming a member of COPE (Committee on Publication Ethics), a few months ago, JKSUCI reached another milestone in its path to becoming a renowned international journal with high standards. This was achieved by becoming indexed under the Emerging Sources Citation Index (ESCI), which is a new database within Clarivate Analytics' Web of Science (formerly Thomson Reuters'). This will provide our Journal with higher visibility towards our ISI indexing goal.

In this last issue of volume 29, twelve papers will be included covering some recent advances in active research areas in computer and information sciences. The first four papers are Computer Networks related. The first being an extensive and deep review of recent research in energy consumption optimization in wireless sensor networks based on coverage protocols. The second paper proposes an efficient route maintenance protocol for dynamic Bluetooth networks, taking into account the signal strength for the links and energy level for the nodes. In the third paper, a robust and efficient intrusion detection model is proposed. It uses Chi-square feature selection and a multi-class support vector machine to increase the individual classification accuracy of the network attacks, and thus achieving better detection and reduced false alarm rates. In the fourth paper is presented an efficient cloud-net allocation algorithm that improves the performance of cloud service providers in allocating cloudnets to the most suitable virtual machines (VM). The optimization parameters used include waiting time, make span, and uniformity of VMs utilization.

The next three papers are related to image processing, where the authors in the fifth paper developed a smartphone tool for banknotes recognition (for both coins and paper). It

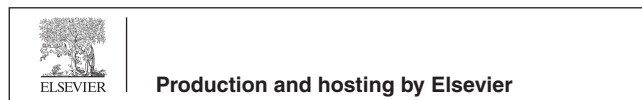
uses a color-based scale-invariant feature transform (SIFT) algorithm. The experimental results showed its superiority over the gray-based algorithm. In the sixth paper, a robust de-noising system is designed to restore stained old manuscripts. It uses a non-biased quadratic stein estimator to remove any Gaussian noise, followed by a bilateral filter to smooth and remove any unnecessary details. In the seventh paper, an encryption scheme is proposed for secure image communication. The scheme is based on the use of two pseudo random numbers, with the first being used for the permutation of the plain image, while the second is used to generate a random DNA sequence for encryption. The scheme was applied to gray images only.

The eighth paper proposes a framework for accessing shared electronic health records. It applies a Hierarchy Similarity Analyzer on the policies to be merged. The ninth paper presents a thorough performance analysis of the widely used in-memory databases (NoSQL) in terms of execution time and memory usage efficiency. The tenth paper builds a model for measuring the effects of various variables on collaborative learning when using social media. The eleventh paper presents a low complexity Functional Link Artificial Neural Network (FLANN) model for predicting financial time series data over various periods of time ranging from one day to one month. The last paper studies the distraction effects of social media on students in academia.

With this, we close volume 29 with a new era looming on the horizon for JKSUCI.

**Prof. Nasser-Eddine Rikli**  
 Editor-in-Chief of JKSUCI

Peer review under responsibility of King Saud University.



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