Knowledge-Based Communication System

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With the evolvement of wired and wireless communication technologies and the rapid development of heterogeneous big-data integration, the internet of things (IoT), digital transformation, and distributed storage processes, information communication technology (ICT) has gradually become complicated and intelligent. Knowledge-based communication is used as an evolutionary platform to interact with users through wireless personalized communication; this communication form's capability to connect with knowledge-based communication means that general users are able to access the platform easily and can receive a variety of services.

The paper by Thirunavukkarasu et al. [1] presents a nonintrusive forensic-detection method using a discrete stationary wavelet transform (SWT) and multidimensional-scaling (MDS) feature descriptors. It is used as a reduced feature set for detecting the category of copy-move image tampering that automatically identifies multiple tampered regions and distorted tampered regions using the knowledge of the images. The paper by Lim et al. [2] presents the design of a wearable radio-frequency identification antenna using a redesigned antenna and the employment of spiral structures. This is used in the development of the wearable radio-frequency identification antenna for cuffs or shirt collars based on an analysis and the dimensions of the antenna geometry.

The paper by Jeong et al. [3] presents a hierarchical biometric-information management scheme through a heterogeneous-device synchronization. This is the study of an analytic hierarchy process (AHP) that uses an information-management scheme for the analysis of medical-device correlations for the purpose of treatment. In addition, it performs not only hospital administrative work but also disease analysis and treatment. The paper by Jin et al. [4] introduces influencing factors, a structural connotation, and measuring dimensions

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regarding the sense of circle using qualitative research and an empirical method. The connotation consists of shared beliefs, a reciprocal exchange, a role orientation, and a social structure. For this study, a conceptual model of the sense of circle was developed in a mobile social network; additionally, influencing factors regarding the sense of circle, enrichment, and the development of a circle theory were discovered.

The paper by Seo et al. [5] presents a financial-security crawling technique for smartphones using text mining. The authors of this study collected news articles of safe-financing trends via mobile-phone trends using the crawling technique; furthermore, it processes problem definitions, data cleaning, and visualization procedures using the text-mining and social-network-analysis tools. In this study, the smartphone shows the visualization results that are based on financial-security, financing, and security keywords. The paper by Kim [6] presents the development of an evaluation algorithm for the blood-infection degree. The algorithm uses microscopic blood images for the evaluation of parasitic results that are obtained using analytical tools, and the infective degree in infected blood is assessed using the standardized inspection procedures. This process is robust and its evaluation procedure comprises morphological image processing; the Hue, Saturation, Value (HSV) color space; and an adaptive histogram equalization.

The paper by Noh [7] presents a knowledge-based process-management model and a cloud service for a process-management optimization using big data in the wireless-communication environment. This study developed a knowledge-based model for a manufacturing-facility-optimization specialized system using the manufacturers, whereby the data that are generated in the manufacturing facilities were collected and analyzed. In addition, it provides a high-level knowledge base that is based on an analysis of the data of the supply-chain networks. The paper by Ku et al. [8] introduces an equipment-failure-prediction model using a big-data analysis that is for the Rhadoop platform. The used equipment-failure description variables are data, temperature, speed, gauge, width, and state. This platform integrates an R analysis in the OpenStack cloud environment and the Hadoop distributed file system that was performed between the distributed data and the data parallel storage in the industrial field and the object-sensor failure in a highly scalable manner.

The paper by Lee et al. [9] proposes an advanced backup platform to eliminate the complexity of a fault-tolerant system. This study customizes and incorporates a container-based virtualization to circumvent the hardware dependencies, and it provides guidelines for an automatic improvement of the reliability of mission critical systems and container-based operations. For the paper by Kim et al. [10], a children-story production system is developed to improve child creativity. This system is an animation assimilation system that uses three-dimensional (3D)-object modules, and it is designed to simplify the editing of 3D objects with the use of a minimal interface, thereby resulting in the creativity improvement.

The paper by Kim et al. [11] presents an element data service for electronic documents that is related to national research and development (R&D) projects, and the integration of the element data service of this study is in high demand among researchers. It consists of a report, the classification and extraction of figures and tables, and key sentences for which the meaningful information among unstructured data is used. The paper by Cheoi et al. [12] presents a selective visual-attention system using an adaptive spatiotemporal feature extraction and a dynamic combining method. Here, the user can detect the regions of interest (ROIs) effectively by adaptively selecting features and spatial saliencies according to experimental images. This study shows improvements of the visual recognition,

extraction features, and saliency calculation compared with the previous systems through its use of a multiresolution feature analysis and a typical bottom-up method.

The paper by Lee et al. [13] introduces the use of the intention of the long-term evolution (LTE) mobile service, where the effects of the influential factors of LTE regarding convenience, usefulness, and playfulness in terms of satisfaction and the continuous-use intention are provided. The results show a relationship analysis of the variables that affect the satisfaction regarding LTE services and the various code-division multiple access (CDMA), wideband code-division multiple access (WCDMA), and wireless broadband (WiBro) services. The paper by Yang et al. [14] presents the development of a platform-based knowledge-map service to obtain the data insights of an R&D institution regarding the subjects of interest. It provides a platform-based analysis and visualization services through the formation of a knowledge map that is based on an analysis of and the extractions from the interesting data. Lastly, the paper by Oh et al. [15] presents a performance evaluation of a silence-feature normalization model using the cepstrum features of noise signals, where airport-, car-, and street-noise signal-reduction rates were used to evaluate the recognition performance. This study constructed a reliable speech-feature model to minimize the influence of noise signals using the cepstrum feature and normalization features.

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