

# Editorial

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The September 2022 issue (Vol. 30, No. 3) of *CIT. Journal of Computing and Information Technology* brings four papers from the areas of edge computing, financial risk prediction, power demand forecasting, and natural language processing.

The first paper in this issue, titled *A Case Study of Edge Computing Implementations: Multi-Access Edge Computing, Fog Computing and Cloudlet*, deals with the different ways in which edge computing is commonly implemented. The authors, Liang Tian and Xiaorou Zhong, review the requirements, benefits, and mechanisms of typical deployment cases for each implementation type and identify challenges and future directions in this recent computing field. While implementation types have differences in terms of functionalities, supported technologies, and deployment scenarios, the authors observe that all three types focus on providing application-oriented operational environments to support automated application deployment, management, and business provisioning. They conclude that, although hardware infrastructure and software technologies in edge computing are relatively mature, it is still difficult to achieve efficient scheduling decisions in real-world scenarios, thus pointing to further research in optimization and scheduling for edge computing.

Financial risk prediction of companies is an important aspect in business. In the paper titled *Research on the Design of Financial Management Model Based on SOM-PNN Driven by Digital Economy*, the author Di Fan proposes a new data mining approach for efficient financial risk prediction. The method consists of combining a self-organizing map (SOM), which is used to extract features and compress the data, with a probabilistic neural network (PNN) that is used to provide a classification result. The method is evaluated on a dataset consisting of financial conditions of companies on the Chinese A-share market that were not exposed to financial concerns. The task was to determine whether the companies' conditions would deteriorate in the upcoming year. The author shows that both the classification accuracy and the model convergence times compare favorably to the methods from related work, achieving about 85% prediction accuracy in determining the outcome for the listed companies in the period from 2016 till 2020.

In their paper, titled *Short-Term Power Demand Forecasting Using Blockchain-Based Neural Networks Models*, Ruohan Wang, Yunlong Chen, Entang Li, Hongwei Xing, Jianhui Zhang, and Jing Li deal with the topic of short-term (1-hour) power demand forecasting in the context of individual households. The authors evaluate the results of traditional forecasting models, back-propagation (BP) neural network models and long short-term neural network (LSTM) models on five power consumption datasets. For increased security and reliability, the authors propose to use blockchain technology for neural network model distributed storage. The results thus achieved show that short-term power prediction models of the BP neural network algorithm outperform LSTM models by 25.7% in terms of mean average error. Also, the average error value for the BP network models is more than twice as low as the traditional prediction models on the test sets. The authors discuss the effects of the obtained results on power load balancing and environmental protection.

In the last paper of the issue, titled *Research on Keywords Variations in Linguistics Based on TF-IDF and N-gram*, the authors, Yuyao Li, Xueyi Wen, and Xingyu Liu, provide a study on the historical variations of the main topics in linguistics. The problem is approached from the perspective of natural language processing (NLP), where the authors use NLP techniques to extract keywords from 37,890 literature titles in the field of linguistics and present the historical development of linguistics' research according to the temporal relationship of the keywords found. TF-IDF and N-gram methods are used for preprocessing the database of titles to obtain the relevant keywords for several historical periods, while Linear Discriminant Analysis (LDA) is used to obtain linear models for 10 linguistic topics based on the discovered relevant keywords. The authors match the topics with different subfields of linguistics and establish the relevance of the obtained models with respect to already known hotspots in linguistics research.

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Editor-in-Chief