(Gargiulo et al. 2019) examined a Deep Learning (DL) strategy based on a Convolutional Neural Network (CNN) for the hierarchical XMTC issue. Using the PubMed scientific article as a test case, HLSE approach was utilized to classify the text of a MeSH collection including 27,775 different classes organized as a hierarchical graph. Several embedding models (NLP, BioASQ, POS, fastText, and Dependency Tree) were employed, with NLP preprocessed with HLSE proving to be the most effective.

(Qing et al. 2019) developed a unified hierarchical model for high-dimensionality In the medical literature. They introduced a novel hierarchical neural network method that works at both the sentence and document levels. BIGRU was used to represent sentences and documents. Seven techniques were assessed (including CNN, LSTM, RCNN, HAN, SVM, Fasttext, Logistic Regression, and Ac-BiLSTM), and their approach outperformed other baselines.

(Johnson and Zhang 2017) developed Deep pyramid convolution neural networks for text categorization using datasets such as AG, Sogoru, Dbpedia, Yelp.p, Yelp.f, Ama.f, and Ama.p, and their model surpassed the previous best models on six benchmark datasets.

(Fouzi et al. 2001)Used Artificial Neural Network (ANN) for test classification of hadiths and found that their SVD model is 52.4s faster than MPL NN, which gets the best performance of only 52%

(Ren et al. 2018)proposed a Multi-Stream Neural Network Method that works well in both English and Chinese corpora. The macro F1 score of Reuters 21578-R8 has increased to 95.02 percent, representing a 10.16 percent improvement, and the macro F1 score of Fudan University corpus has increased to 85.03 percent, representing an 8.75 percent improvement. The proposed method outperformed GRUs, Multinomial NB, SVM, Bayes Network, and KNN in Reuters R8 (97.67%) and Reuters R52 (94.35%) accuracy.

(Li et al. 2020) proposed the Recursive Data-Pruning Convolutional Neural Network (ReDP-CNN), which removes unnecessary words from a dataset without altering the network structure. 2.179 M samples were acquired from AGNews, Yahoo, Yelp Full, Yelp 10000, and trained, and 107k samples were tested. It was observed that the Recursive Data Pruning neural network outperformed the traditional neural network system.

(Nam et al. 2014) presented a neural network-based multi-label classification framework (which can be evaluated in two groups of measures: bipartition and ranking) that outperformed BP-MLL in predictive performance, computational complexity, and convergence speed. The experiment used nearly 1.2 million research documents from Reuters-21578, RCV1-v2, EUR-Lex, Delicious, Bookmarks, and the German Education Index. To avoid a computational bottleneck caused by many labels, the 1000 most common labels were chosen from 50,000.

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