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Knowledge Graph Construction Base on Power Accident Emergency Plan

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Introduction

First, the corresponding conceptual model and rule relationship are designed according to the structural features of the manually labeled data , the top-level ontology is constructed, and the artificially labeled data is constructed as the initial power graph. Then the DocuNet model is used to extract entity relationships from text data, and the automatically extracted entity relationships are fused with the initial graph to complete the construction of the knowledge graph of power accident emergency plans.

Result and discussion

TABLE II. COMPARISON TABLE OF EXPERIMENTAL RESULTS OF DIFFERENT COMBINATION MODELS

Model		DEV		Test	
Model	Accuracy	$Ign\ F_1$	F1	$Ign\ F_1$	F1
Bi-GRU	87.98	85.84	86.16	84.56	85.74
Bi-LSTM	87.68	84.24	85.23	83.27	85.65
CNN	82.52	80.04	82.13	79.85	83.14
DocuNet	89.99	89.36	89.65	88.89	90.56

The accuracy rate of the DocuNet model reaches 89.99%. Compared with the Bi-GRU model, its accuracy rate is increased by 2.01%, and the F1 value is increased by 3.52%, which has significant advantages.
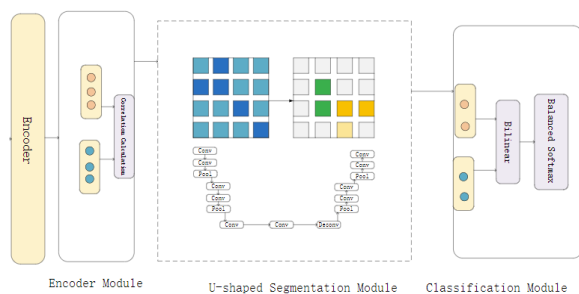
Methods

Fig. 1. Document U-shaped Network

Conclusion

This paper takes the text data of power accident emergency plan as the object, and proposes a construction method of knowledge graph of power accident emergency plan. Aiming at the problems of small volume of trainable data and high labeling cost in the current power accident plan data, 5-fold cross-checking is used in experiments to conduct experiments, and smaller training data is used to train the model and obtain better recognition performance. Extraction of entities in accidents. And analyze the text of the power accident emergency plan, design the top-level ontology of the graph, and provide a standard for the accident emergency plan in the power field.