Yan Wang

Ph.D. student in Computer Applied Technology

School of Computer Science and Technology, Dalian University of Technology
No.2 Linggong Road, Dalian City, Liaoning Province, China, P.R.C.,116024

wy2266336@mail.dlut.edu.cn | +86-18742507505

Research Interests

Information Extraction: Proposing an NLP method to extract relevant and useful information from unstructured data sources such as EHR notes, biomedical literature, and other healthcare documents.

Multimodal Information Mining: Using biomedical-related text-image pairs to detect medical risk events or classify diseases such as ADR, Pulmonary nodules, etc.

Education

Dalian University of Technology — Dalian, China
Ph.D. in Computer Applied Technology — Sep 2018 – present

Dalian University of Technology — Dalian, China
M.Sc. in Computer Applied Technology — Sep 2016 – Jun 2018

Shanxi University — Taiyuan, China
B.Sc. in Software Engineering — Sep 2012 – Jun 2016

Publications

[1] **Yan Wang**, Wang Jian, Lin Hongfei, et al. Dependency multi-weight-view graphs for event detection with label co-occurrence[J]. Information Sciences, 2022, 606: 423-439.

[2] **Yan Wang**, Wang Jian, Lu Huiyi, et al. Conditional Probability Joint Extraction of Nested Biomedical Events: Design of a Unified Extraction Framework Based on Neural Networks[J]. JMIR Medical Informatics, 2022, 10(6): e37804.

[3] **Yan Wang**, Wang Jian, Lin Hongfei, et al. Bidirectional long short-term memory with CRF for detecting biomedical event trigger in FastText semantic space[J]. BMC Bioinformatics, 2018, 19: 59-66.

[4] **Yan Wang**, Wang Jian, Lin Hongfei, et al. Biomedical event trigger detection based on bidirectional LSTM and CRF[C]//2017 IEEE international conference on bioinformatics and biomedicine (BIBM). IEEE, 2017: 445-450.

[5] Mengying Li, Jian Wang, **Yan Wang**, et al. Bacteria Biotope Relation Extraction Based on a Fusion Neural Network[J].Pattern Recognition and Artificial Intelligence, 2019, 32(02): 177-183.

[6] Linfei Qian, Anran Wang, **Yan Wang**, et al. First Place Solution for NLPCC 2017 Shared Task Social Media User Modeling[C]//Natural Language Processing and Chinese Computing: 6th CCF International Conference, NLPCC 2017, Dalian, China, November 8–12, 2017, Proceedings 6. Springer International Publishing, 2018: 63-72.

[7] Di Zhao, Jian Wang, Yijia Zhang, Yonghe Chu, **Yan Wang**, et al. Sentence representation with manifold learning for biomedical texts[J]. Knowledge-Based Systems, 2021, 218: 106869.

China Invention Patent

[1] "A conditional probability joint event extraction method under a graph convolutional attention mechanism", Patent No.:2020115802848, Acceptance in 2021.

[2] "A deep learning-based method for identifying benign and malignant lung nodules", Patent No.:2019 106732186, Acceptance in 2019.

Research Projects

[1] National Natural Science Foundation of China (No. 61572098): "Research and application of biological event extraction based on multi-word drive and convolutional neural network", 2016.01-2019.12, Main participating members.

[2] National Natural Science Foundation of China (No. 61572102): "A study of social network-oriented implicit knowledge discovery of adverse drug reactions", 2016.1-2019.12, Main participating members.

[3] National Natural Science Foundation of China (No. 62072070): "Research on drug repositioning implicit knowledge discovery methods for biomedical literature", 2021.01-2024.12, Main participating members.

[4] National Key Research and Development Program of the Ministry of Science and Technology of the People's Republic of China (No. 2016YFB1001103): "Entity-oriented multi-source information perception fusion and understanding technology research", 2016.07-2019.06, Main participating members.

Research Experience

Biomedical Event Extraction

Advisor: Prof. Jian Wang

Proposing an end-to-end joint extraction model that considers the probability distribution of triggers to alleviate cascading errors. Moreover, we integrated the syntactic structure into an attention-based gate graph convolutional network to capture potential interrelations between triggers and related entities, which improved the performance of extracting nested biomedical events.

Proposing an event trigger detection method using LSTM and CRF model to recognize and classify biomedical trigger words with different semantic space

Event Detection

Advisor: Prof. Jian Wang

Proposing a novel multimodal fusion model that uses a text-vision Cross Transformer to obtain the features of text and vision sharing. In particular, we introduce a weight-adaptive segmentation-pooling method to gain region-level visual semantic features, which is more conducive to enhancing the information interaction and complementarity between text and visions. Furthermore, we use a multi-layer cross-transformer to fuse the semantic space of visions and texts and extract their shared features, which can improve the detection performance of disaster events.

Proposing a novel framework called Dependency Multi-Weight-View Graph (DMWVG) is proposed to detect events without trigger tagging and external feature engineering. Specifically, DMWVG leverages the Tree Transformer to automatically generate syntactic relations with different weights to mitigate the errors generated by external syntactic parsing tools. In addition, an event correlation matrix is constructed with the help of the event label co-occurrence to deliver essential information on triggers and promote the performance of event detection.

Honors & Awards

North China Five Provinces Student Computer Application Competition, Second Prize in Shanxi Province Oct 2015

North China Five Provinces, Hong Kong, Macau, and Taiwan Student Computer Application Competition, National First Prize Nov 2015

The 6th National Social Media Processing Conference Technical Competition, National Excellence Award Sep 2019

Computer Skills & Interests

Programming Skill	Python, Java
Framework	Pytorch, Tensorflow
Interests	Reading, Swimming, Tennis, Badminton, Guitar, Ethnic Instruments Erhu