RUN-ZE FAN (樊润泽)

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EDUCATION

University of Chinese Academy of Sciences Sep. 2021 - Jun. 2024(Expected)
M.S. in Computer Science and Technology
CAS Key Lab of Web Data Science and Technology, Institute of Computing Technology(ICT)
Advisor: Prof. Jiafeng Guo.

Shanghai Maritime University Sep. 2017 - Jun. 2021
B.E. in Computer Science and Technology Overall GPA: 3.85/4.0
Department of Information Engineering Ranking: 1/109

RESEARCH INTERESTS

My research interests lie at the intersection of natural language processing and machine learning.

Specifically,

- **Event Extraction(EE)** aims to automatically extract the structured event information (event type, trigger, arguments) from raw text data.
- **Universal Information Extraction** aims to extraction any structure information (entity, relation, event) under any schema via a unified framework.
- **Retrieval Augmentation** aims to combine the parametric language model with a nonparametric model (that retrieves related knowledge) to obtain some desirable properties such as explainability, robust controllability and better generalization ability.
- **Cross Task Generalization** aims to study the ability of current PLMs to generalize on unseen NLP tasks, which is a more challenging yet important setting.

RESEARCH EXPERIENCES

Text to Paraphrase Generation for Event Extraction Mar. 2022 - Jun. 2022

· I implemented a **text-to-paraphrase** model, a **sequence-to-sequence generation paradigm** that can directly extract events from the text in an end-to-end manner based on T5. Experimental results show that this method can achieve **the state-of-the-art performance** comparing with other methods using the same scale backbone in supervised learning setting.

· In conclusion, paraphrase is more suitable to utilize the knowledge that PLM learned from large scale corpus, as it is similar to natural language.

· Furthermore, I updated my survey of neural event extraction adding new works published in 2022. [PDF]

The Final Project of Natural Language Processing Course in UCAS Oct. 2021 - Dec. 2021

Neural Event Extraction at Sentence Level

- As the team leader, I implemented a baseline for **Event Extraction** using BERT. In this model, trigger identification and classification were regarded as a sequence labeling task and arguments identification and classification were regarded as classification task. To address the error propagation problem, a multi-task learning was adopted including Relation Extraction, Named Entity Recognition and Event Extraction.
- Furthermore, I wrote **a Survey of Neural Event Extraction**(Chinese). (**Presentation**(6/300))

[PDF] [Slides]

Bachelor's Graduation Project Dec. 2020 - May. 2021

A Study of Key Entity Extraction Methods at Document Level *Excellent Bachelor's Graduation Thesis*

- To address **Key Entity Extraction** problem, I proposed and implemented a key entity extraction algorithm based on similarity weight transfer. Firstly, I used BERT and CRF model for named entity recognition, then I used the graph-based unsupervised model TextRank algorithm to find the key phrases and their importance weights, and finally I used **the proposed key entity extraction algorithm KEE-SWT** to find the key entities, i.e., key person, key location and key organization.
- The experimental results showed that the KEE-SWT algorithm proposed in this paper outperforms the MultiRank algorithm (**F1-Score improves by 18% on Top-1 and 12.5% on Top-3**), and the title entity weight enhancement method could significantly improve the performance of KEE-SWT and MultiRank algorithms (**F1-Score improves by 13% on average on Top-1 and 6.6% on Top-3**).

SELECTED COMPETITIONS

Dec. 2018	**Asia and Pacific Mathematical Contest in Modeling**	**International 2nd Prize**
Apr. 2019	**Accreditation Cup Mathematical Modeling Competition**	**National 3rd Prize**
Nov. 2018	**Mathematics Competition of Chinese College Students**	**National 3rd Prize**
Dec. 2019	**China Undergraduate Mathematical Contest in Modeling**	**Municipal 2nd Prize**
Dec. 2018	**Physics Competitions for College Students in Shanghai**	**Municipal 2nd Prize**

SELECTED AWARDS

Excellent Bachelor's Graduation Thesis	2021 Shanghai Maritime University
Excellent Graduate	2021 Shanghai Maritime University
First Class Scholarship of Shanghai Maritime University	2019, 2020, 2021
Merit Student of Shanghai Maritime University	2018, 2019, 2020

TECHNICAL SKILLS

Programming	PyTorch, Python, MATLAB
Software & Tools	LaTeX, Git
English	CET-6: 470