Chenxu Wang

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EDUCATION

Beijing Institute of Technology **Beijing, China**
M.E. in Artificial Intelligence Sept. 2022 - Jun. 2025 (expected)

- GPA: 3.73 / 4.00
- Supervisor: Prof. Ping Jian

Beijing Institute of Technology **Beijing, China**
B.E. in Computer Science and Technology Sept. 2018 - Jun. 2022

- GPA: 3.7 / 4.00 (Top 20%)

RESEARCH INTERESTS

- Machine reasoning via large language models
- Discourse Analysis

PUBLICATIONS

[1] Thought-Path Contrastive Learning via Premise-Oriented Data Augmentation for Logical Reading Comprehension
Chenxu Wang, Ping Jian, Zhen Yang
Submitted to AAAI 2025

[2] Prompt-based Logical Semantics Enhancement for Implicit Discourse Relation Recognition
Chenxu Wang, Ping Jian, Mu Huang
EMNLP 2023 (oral presentation)

[3] Numerical Semantic Modeling for Implicit Discourse Relation Recognition
Chenxu Wang, Ping Jian, Hai Wang
ICASSP 2023

RESEARCH EXPERIENCE

Thought-Path Contrastive Learning via Premise-Oriented Data Augmentation for Logical Reading Comprehension Sept. 2023 - Present
Aim: construct high-quality logical reasoning data and propose a training method by contrasting reasoning paths.

- Proposed a premise-oriented data augmentation framework, which can generate CoT rationales including analyses for both correct and incorrect options, while constructing diverse and high-quality counterfactual contexts from incorrect candidate options.
- Introduced a thought-path contrastive learning approach, facilitating the model to better differentiate the reasoning process associated with each option between the original and counterfactual samples.

Prompt-based Logical Semantics Enhancement for Implicit Discourse Relation Recognition Dec. 2022 - Aug. 2023
Aim: enhance discourse relation understanding and improve model generalization by utilizing unannotated data and novel training objectives.

- Exploited unannotated utterances with connectives to learn better discourse relation representations.
- Proposed a connective prediction method based on Cloze-Prompt that seamlessly injects knowledge related to discourse relation into PLMs and bridges the gap between the pre-training and the downstream task.
- Designed a novel self-supervised learning objective based on mutual information maximization to address the local dependencies of predicted connectives representations and capture global semantic information with logical coherence.

Numerical Semantic Modeling for Implicit Discourse Relation Recognition May 2022 - Nov. 2022
Aim: enhancethe inference of numerical logic in discourse by leveraging GNN to analyze the relationships and semantics of numerical data.

- Attached importance to numerical semantics and designed a numerical logic reasoning module specifically for the numeric tokens in discourse arguments to enhance the discourse logic inferring.
- Utilized GNN to calculate the interactions of these numerical elements by self-attention and inter-attention according to their numerical type and their location in the discourse arguments.

AWARDS

Second-Class Graduate Scholarship, Beijing Institute of Technology 2023
First-Class Graduate Scholarship, Beijing Institute of Technology 2022
Second-Class Undergraduate Scholarship, Beijing Institute of Technology (4 times) 2018 - 2021

SKILLS

- **Computer skills:** Python, C/C++, Latex.
- **Language:** English (fluent), Chinese Mandarin (native).