Jiaang Li | 李家昂

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Education

Ph.D. Candidate *2021.9 – Present*
University of Science and Technology of China (USTC)
- Co-advised by Prof. Zhendong Mao and Prof. Yongdong Zhang
- Information and Communication Engineering, School of Information Science and Technology

Bachelor of Engineering *2017.9 – 2021.6*
University of Science and Technology of China (USTC)
- Major in Automation, School of Information Science and Technology
- Member of Artificial Intelligence Elite Class
- Overall Ranking: 19/105

Research Experience

ELDER: Enhancing Lifelong Model Editing with Mixture-of-LoRA
- Current Lifelong Model Editing approaches manage sequential edits through discrete data-adapter mappings. They assign a unique adapter for each new edit via key-value mapping, making them sensitive to minor data changes, causing inconsistent outputs and poor generalization.
- In contrast, our method maps each edit to a mixed combination of preset adapters, ensuring minor data changes don't entirely alter the adapter parameters, enhancing generalization. Experiments on Llama2-7B and GPT2-XL have proven the effectiveness of our method.
- Our method also addresses the scalability challenge by sharing preset adapters across edits, while previous discrete methods require as many adapters as edits.
- Accepted by AAAI 2025.
- Resource: Paper and Code

Random Entity Quantization for Parameter-Efficient Compositional Knowledge Graph Representation
- Knowledge Graph (KG) Embedding, represents entities with independent vectors and faces the scalability challenge. Recent studies propose compositional KG representation for parameter efficiency. We abstract the existing works, and define the process of obtaining corresponding codewords for each entity as entity quantization, for which previous works have designed complicated strategies.
- Reveal that simple random entity quantization can achieve similar results to current strategies. Further analyses reveal that entity codes have higher entropy at the code level and Jaccard distance at the codeword level under random entity quantization, which make different entities more distinguishable.
- We prove that random quantization strategy is already good enough for KG representation. Future work could focus on improving entity distinguishability from other aspects.
- Accepted by EMNLP 2023 as an oral paper (~3%).
- Resource: Paper, Code and Slides

Inductive Relation Prediction from Relational Paths and Context with Hierarchical Transformers
- Propose a method that performs inductive reasoning on Knowledge Graphs and can naturally generalize to the fully-inductive setting, where KGs for training and inference have no common entities.
- Capture both connections between entities and the intrinsic nature of each single entity, by simultaneously aggregating relational paths and context. Use the aggregated upper-level semantics for reasoning to improve model prediction performance.
- Design a Hierarchical Transformer model for path-neighborhood encoding and information aggregation. Our proposed model performs consistently better than all baselines on almost all the eight version subsets of two fully-inductive datasets. Moreover. we design a method to interpret our method by providing each element's contribution to the prediction results.
- Accepted by ICASSP 2023 as an oral paper (~4%).
- Resource: Paper, Code and Slides

Other Experience

Research Intern at State Key Laboratory of Communication Content Cognition *2022.9 -2022.12*

- Hosted by Prof. Yongdong Zhang
- Use the method of open-domain question answering to solve a reading comprehension project.
- A data augmentation method is designed with Named Entity Recognition.

Teaching Assistant *2023 Spring*

- Machine Learning and its Applications, by Prof. Zhendong Mao

Summer Exchange *2019 Summer*

- Robotics and Artificial Intelligence Summer School at Imperial College London, UK.
- Won the *Best Overall Project*.

Honors and Awards

GDC Tech Scholarship	2023
Institute of Microsystems, CAS Scholarship	2019
USTC Outstanding Student Scholarship	2017 & 2018 & 2021

Skills

Language – Chinese/English

- TOEFL: 101

Programming Language

- Python/MATLAB/C