Jiasheng Gu

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Education

University of Southern California *Los Angeles*

Master of Science in Electrical and Computer Engineering, Machine Learning and Data Science Aug. 2021 - May. 2023

GPA: 4.0 Core courses: Probability and Statistic, Linear Algebra, Machine Learning, Deep learning

Xidian University *Xian*

Bachelor of Science in Telecommunications Engineering Sep. 2017 - Jun. 2021

GPA:3.6 Core courses: Computer Network, Data Structure and Algorithm, Object Oriented Software Engineering

Skills

Programming	Python, C++, C, R, Java, SQL, JavaScript, HTML, MATLAB
Framework	PyTorch, Tensorflow, OpenCV, NumPy, Scikit-Learn, SciPy
Professional Softwares	Git, LaTeX, SPSS, Mathematica, AWS, GCP, Docker, MongoDB
Languages	English(TOEFL 102)

Research Projects

Zero-shot Code Generation via Rule-AI Co-learning from Document

NCSU, advised by Dongkuan Xu, Xipeng shen Aug. 2022 -

- Designed a zero-shot code generation framework to generate DSL code from document knowledge.
- Used retriever to get APIs related to query, let rule-based method generate code based on them.
- Trained CodeT5 on data generated from rule-based method.
- Update the retriever with the encoder section of CodeT5 to better retrieve relevant document information for queries.

Robustness of learning from task instructions

Temple University, advised by Wenpeng Yin May. 2022 - Jul. 2022

- Verified and analyzed the robustness of Tk-instruct on natural instruction v2 dataset.
- Tampered instructions and created new different version to check the robustness in evaluation.
- Prepend multiple-version instruction and add adversarial attack to improve robustness.

Integrating factual information of language models into knowledge graph embeddings

USC, advised by Pedro Szekely Jan. 2022 - May. 2022

- Use prompts to mine factual information from language models to complete downstream tasks.
- Trained RotatE link prediction models on YAGO3-10 dataset.
- Using KnowBERT, GPT-Neo as the evaluation model to calculate perplexity of sentences constructed from triples.
- Adjust the scores of link predictions by perplexity, hits@1, hits@5 improved by 20%.

Research Projects

University of Southern California, SPORT lab

student worker Jan. 2022 - May. 2022

- Trained deep neural networks through Boolean logic minimization significantly reduces the consumption of computational resources and the latency of inference.
- Integrated PyTorch distributed data-parallel framework into the flow to support multi-GPU processing.

Robustness of learning from task instructions

Temple University, advised by Wenpeng Yin May. 2022 - Jul. 2022

- Established an NLP system to summarize the text through Tensorflow in the environment built by Nvidia Docker.
- Analyzed and processed Chinese text summarization datasets by NLTK and jieba.
- Benchmarked Point-Generator, WoBERT, NEZHA, and T5 on the above datasets to obtain a title or abstract.
- Expedited the inference of these transformer-based models by 1.55x faster via TurboTransformer.
- Applied the Bert-of-Theseus method to distill WoBERT, shrank model size to 50%.