Jiasheng Gu

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Research Interests

My research interest lies in the fields of natural language processing and generation, along with reliable and efficient methods for interconverting between natural language and different forms of data.
Long-term research goal: Use artificial intelligence to turn natural language into a bridge to various tasks.

Education

University of Southern California Los Angeles, CA
Honor M.S. in Machine Learning and Data Science Aug. 2021 - May. 2023
Relevant Courses: Deep Learning, Probability, Linear Algebra, Parallel Computing
GPA: 4.0/4.0 (100%)

Xidian University Xian, Shaanxi
B.E. in Telecommunications Engineering Sep. 2017 - Jun. 2021
Relevant Courses: Data Structure, Calculus, Discrete Mathematics
GPA: 3.6/4.0 (90%, Top 10%)

Publications

Robustness of learning from task instructions
Jiasheng Gu, Hongyu Zhao, Hanzi Xu, Liangyu Nie, Hongyuan Mei, Wenpeng Yin
ACL 2023 findings, *Arxiv*

Co-evolving Data-driven and NLU-driven Synthesizers for Generating Code in Domain Growth and Data Scarcity
Jiasheng Gu, Zifan Nan, Zhiyuan Peng, Dongkuan Xu, Xipeng Shen
EMNLP workshop 2023

Research Experience

Pennsylvania State University
- Mentor: Wenpeng Yin June. 2022 - Oct. 2022
- Project: Robustness of learning from task instructions
- Contribution: Experimented and analyzed the robustness of the instruction-tuned model on perturbed instructions.
- Publication: *Arxiv*

North Carolina State University
- Mentors: Dongkuan Xu, Xipeng Shen Aug. 2022 – Present
- Project: Zero-shot Code Generation via Rule-AI Co-learning from Document
- Contribution: Proposed a zero-shot code generation framework combining rule-based and AI-based methods to generate DSL code.
- Publication: EMNLP workshop submission

Shanghai Jiaotong University
- Mentors: Pengfei Liu April 2023 – June 2023
- Project: Training Large Language Model on Math Tasks *repo*
- Contribution: Trained(continue pretraining and finetune) LLaMA-13B on well-designed math datasets to improve the performance of math tasks.

University of Southern California
- Mentors: Peter A. Beerel — Aug. 2022 – Dec. 2022
- Project: Designing visual networks with very low FLOPs
- Contribution: Proposed a dilated depthwise convolution that captures global information and extensive experiments are done on it.

Dartmouth College
- Mentor: Soroush Vosoughi — May. 2022 - Sep. 2022
- Project: The Evolution of Artificial Intelligence in Bio-Medicine
- Contribution: Proposed a method to analyze artificial intelligence techniques used in biomedical publications.
- Publication: Under review, Journal of Medical Internet Research (JMIR)

ETH Zürich
- Mentor: Yuyi Wang — June. 2020 - Oct. 2020
- Project: Designing pre-training tasks for text summarization
- Contribution: Using trained metrics to find the highest-importance sentences as summaries makes the pre-training task more effective.

Industry Experience

Lime
- SDE internship — May. 2022 - Aug. 2022
- Enhanced system scalability by refactoring the timed feature extraction and computation process. Achieved significant improvements in overall system efficiency through optimization of timed computations.

Transwarp
- NLP internship — Jan. 2021 - Apr. 2021
- Designed and implemented a hybrid long-text summarization system combining extractive and abstractive methods; utilized DGCNN for extractive summarization and leveraged BART for abstractive refinement.

Professional service

Program Committee
- The European Chapter of the ACL (EACL) 2023
- ACM International Conference on Web Search and Data Mining(WSDM) 2023
- Association for Computational Linguistics(ACL) 2023
- Conference on Empirical Methods in Natural Language Processing(EMNLP) 2023
- The Association for the Advancement of Artificial Intelligence(AAAI) 2023

Teaching Experience

Teaching assistant, University of Southern California
- EE 503: Probability for Electrical and Computer Engineers — Fall 2022

Awards

USC Ming Hsieh Department of Electrical and Computer Engineering
- Masters Students Honors Program 2021

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

References

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