# Jiasheng Gu

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## Research Interests

Natural language processing and generation, machine learning, and reliable and efficient interconversion 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
M.S. in Machine Learning and Data Science Aug. 2021 - May. 2023
Relevant Courses: Machine Learning, Deep Learning, Probability, Linear Algebra
*GPA: 4.0/4.0 (100%)*

**Xidian University** Xian, Shaanxi
B.E. in Telecommunications Engineering Sep. 2017 - Jun. 2021
*GPA: 3.6/4.0 (90%, Top 10%)*

## Publications

**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
*Submitted, ACL*

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

**The Evolution of Artificial Intelligence in Bio-Medicine**
**Jiasheng Gu**, Lili Wang, Soroush Vosoughi
*Submitted, Journal of Medical Internet Research (JMIR)*

## Research Experience

**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: ACL in prep

**University of Southern California**
- Mentors: Peter A. Beerel Aug. 2022 – Present
- 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.

**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*

**Dartmouth College**
- Mentor: Soroush Vosoughi May. 2022 - Sep. 2022
- Project: Analysis of AI techniques used in biomedical publications
- Contribution: Proposed a method to analyze artificial intelligence techniques used in biomedical publications.
- Publication: JMIR submitted

**University of Southern California**
- Mentor: Pedro Szekely Jan. 2022 - May. 2022
- Project: Integrating factual information from language models into knowledge graph embeddings
- Contribution: Improved link prediction task by factual information mined from language models via prompts.

**University of Southern California**
- Mentor: Massoud Pedram Aug. 2021 - Dec. 2021
- Project: Reduced-Memory-Access Inference of Deep Neural Networks
- Contribution: Integrated PyTorch distributed data-parallel framework into the flow to support multi-GPU processing.

**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
- Reengineered a system for extracting and computing features to make it easier to modify feature definitions and compute features more efficiently.

**Umer Technology**
- NLP internship Apr. 2021 - Aug. 2021
- Deployed a medical named entity identification system via BERT+CRF.

**Transwarp**
- NLP internship Jan. 2021 - Apr. 2021
- Established a text summarization system with an extractive-abstractive structure.

Professional service

**Program Committee**
- The European Chapter of the ACL (EACL) 2023
- ACM International Conference on Web Search and Data Mining(WSDM) 2023

Teaching Experience

**Teaching assistant, University of Southern California**
- EE 503: Probability for Electrical and Computer Engineers Fall 2022
- Grading course work and answering questions for students.

Awards

**Master of Science (M.S.)**
- Masters Students Honors Program (USC) 2021

**Bachelor of Engineering (B.E.)**

- ZTE Algorithm Competition, Regional Winner Award 2020
- Third Class Scholarship (Xidian University) 2019

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

**Filip Ilievski, Assistant Professor**
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