

# Jiasheng Gu

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[Homepage](#) [GitHub](#) [LinkedIn](#) Email: gujiashe@usc.edu Phone: +1 (213) 204-0294

**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  
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. Bearel](#) 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	<b>Teaching assistant, University of Southern California</b> <ul style="list-style-type: none"> <li>• EE 503: Probability for Electrical and Computer Engineers</li> <li>• Grading course work and answering questions for students.</li> </ul>	Fall 2022
Awards	<b>Master of Science (M.S.)</b> <ul style="list-style-type: none"> <li>• Masters Students Honors Program (USC)</li> </ul>	2021
	<b>Bachelor of Engineering (B.E.)</b> <ul style="list-style-type: none"> <li>• ZTE Algorithm Competition, Regional Winner Award</li> <li>• Third Class Scholarship (Xidian University)</li> </ul>	2020 2019
Skills	<b>Programming</b> Python, C++, C, R, Java, SQL, JavaScript, HTML, MATLAB <b>Framework</b> PyTorch, Tensorflow, OpenCV, NumPy, Scikit-Learn, SciPy <b>Professional Softwares</b> Git, LaTeX, SPSS, Mathematica, AWS, GCP, Docker, MongoDB	
References	<b>Filip Ilievski, Assistant Professor</b> Viterbi School of Engineering University of Southern California ilievski@isi.edu  <b>Peter A. Beerel, Professor</b> Ming Hsieh Electrical and Computer Engineering Department University of Southern California pabeerel@usc.edu  <b>Soroush Vosoughi, Assistant Professor</b> Department of Computer Science Dartmouth College soroush.vosoughi@dartmouth.edu  <b>Wenpeng Yin, Assistant Professor</b> Computer Science and Engineering Department Pennsylvania State University wenpeng.yin@temple.edu  <b>Dongkuan Xu, Assistant Professor</b> Department of Computer Science North Carolina State University dxu27@ncsu.edu  <b>Xipeng Shen, Professor</b> Department of Computer Science North Carolina State University xshen5@ncsu.edu	