# Jiasheng Gu

*Updated December 6, 2022*

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

## Research Interests

Natural language processing and generation, machine learning, and reliable 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

**Few-shot Code Generation via Rule-AI Co-learning from Document**
**Jiasheng Gu**, Zifan Nan, Dongkuan Xu, Xipeng shen
*In prep, ACL*

**Robustness of learning from task instructions**
**Jiasheng Gu**, Hanzi Xu, Liangyu Nie, Wenpeng Yin
*Submitted, EACL*

**Artificial Intelligence Related Techniques Used in Recent Bio-medical Publications**
**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: EACL submitted

**Dartmouth College**

- Mentor: Soroush Vosoughi — May. 2022 - Sep. 2022
- Project: Analysis of artificial intelligence 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 an NLP system to summarize the text through Tensorflow in the environment built by Nvidia Docker.

## 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**
Viterbi School of Engineering
University of Southern California
ilievski@isi.edu

**Peter A. Beerel, Professor**
Ming Hsieh Electrical and Computer Engineering Department
University of Southern California
pabeerel@usc.edu
EEB 350, 3740 McClintock Ave., Los Angeles, CA 90089

**Soroush Vosoughi, Assistant Professor**
Department of Computer Science
Dartmouth College
soroush.vosoughi@dartmouth.edu

**Wenpeng Yin, Assistant Professor**
Computer Science and Engineering Department
Pennsylvania State University
wenpeng.yin@temple.edu
SERC376 1925 N 12th St, Philadelphia, PA 19122

**Dongkuan Xu, Assistant Professor**
Department of Computer Science
North Carolina State University
dxu27@ncsu.edu
3258 EB II, 890 Oval Dr, Raleigh, NC 27695

**Xipeng Shen, Professor**
Department of Computer Science
North Carolina State University
xshen5@ncsu.edu