

Yixiao Song

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5th-year linguistics Ph.D and CS master's student at University of Massachusetts Amherst. Experienced in interpretability and evaluation of NLP models and theoretical semantics.

Education

Ph.D Student in Linguistics

(Advised by Prof. Rajesh Bhatt & Prof. Mohit Iyyer)

University of Massachusetts Amherst

3.93/4.0

2019-current

M.S. in Computer Science

University of Massachusetts Amherst

2023-current

M.A. in Germanic Linguistics

University of Konstanz

1.1/6.0 (excellent)

2016-2018

B.A. in German

University of Shanghai for Science and Technology

3.71/4.0

2011-2015

Publications

kNN-LM Does Not Improve Open-ended Text Generation

arXiv 2023

Shufan Wang, **Yixiao Song**, Andrew Drozdov, Aparna Garimella, Varun Manjunatha, and Mohit Iyyer

- Revealed that retrieval-augmented language models do not improve open-ended generation quality

Paraphrasing evades detectors of AI-generated text, but retrieval is an effective defense

NeurIPS 2023

Kalpesh Krishna, **Yixiao Song**, Marzena Karpinska, John Wieting, and Mohit Iyyer

- Introduced a paraphrase generation model DIPPER which leverages context and offers diversity control
- Stress-tested and successfully evaded major AI-generated text detectors (e.g., watermarking, GPTZero)
- Proposed a simple but effective defense that relies on retrieving semantically-similar generations

A Critical Evaluation of Evaluations for Long-form Question Answering

ACL 2023

Fangyuan Xu*, **Yixiao Song***, Mohit Iyyer, and Eunsol Choi (*Equal contribution)

- Comprehensively evaluated text generation metrics on long-form open-ended question answering generation
- First expert-annotated long-form question answering dataset

SLING: Sino Linguistic Evaluation of Large Language Models

EMNLP 2022

Yixiao Song, Kalpesh Krishna, Rajesh Bhatt, and Mohit Iyyer

- A benchmark with 38K minimal sentence pairs in Mandarin Chinese
- Tested 18 publicly available pretrained monolingual and multi-lingual language models
- Showed that the average accuracy for LMs is far below human performance (69.7% vs. 97.1%)
- Revealed the strengths and weaknesses of large language models

DEMETR: Diagnosing Evaluation Metrics for Translation

EMNLP 2022

Marzena Karpinska, Nishant Raj, Katherine Thai, **Yixiao Song**, Ankita Gupta, and Mohit Iyyer

- A diagnostic dataset with 31K English sentences (translated from 10 source languages)
- Evaluated the sensitivity of MT evaluation metrics to 35 different linguistic perturbations
- Found that learned metrics perform substantially better than string-based ones
- Revealed the strengths and weaknesses of learned metrics

Works and Presentations

Mandarin Chinese Alternative Questions are not Disjoined Polar Questions

Yixiao Song

2021

- First qualification paper supervised by Prof. Rajesh Bhatt and Prof. Seth Cable

Early Cue Effects of Chinese Relative Clause Comprehension in Pre-trained Language Model

Yixiao Song

2021

- Breadth Paper for satisfying Ph.D. requirements

A Comparative Study of German and Chinese Alternative Questions

Yixiao Song

2018

- Poster presentation at Semantics and Philosophy in Europe
- Talk at the 17th China International Conference on Contemporary Linguistics

Internships

- **Quillbot, Learneo, Inc.**
Platform for grammar correction, translation and text rewriting
Research Engineer Intern
Improved German grammar error correct product
(+5% copy rate & +1.7% 1-day retention compared to previous product)
June - September 2023
- **Cultural Institute of the Federal Republic of Germany (Goethe Institut)**
Non-profit German cultural association, promoting the German language study abroad
Translator, interpreter, project assistant
August 2014 - February 2016
- **Friedrich Ebert Stiftung Shanghai Office**
Non-profit German foundation funded by the Government of the Federal Republic of Germany
Translator, project assistant
April-July 2014

Positions of Responsibility

- **Instructor** of LING201 at UMass Amherst: How Language Works—Introduction to Linguistic Theory (R2)
- **Research Assistant** advised by Prof. Mohit Iyyer (Summer 2022): Human evaluation of model performance of long-form question answering.
- **Teaching Assistant** for courses at master level (University of Konstanz) and (under)graduate level (UMass Amherst)
- **Proceeding Editor** of NELS50 and SULA11
- **Student Research Assistant** in Deutsche Forschungsgemeinschaft Project—Questions at the Interfaces (P3 Alternative Questions)

Skills

- **Natural Languages:** Shanghai Wu, Mandarin Chinese, English, German
- **Programming:** Python (PyTorch, Hugging Face), R, Linux, Perl
- **Others:** \LaTeX