# Yixiao Song

✉ yixiaosong@umass.edu ● 🌐 yixiao-song.github.io

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)                                          3.93/4.0
    University of Massachusetts Amherst                                          *2019-current*

**M.S. in Computer Science**
    University of Massachusetts Amherst                                          *2023-current*

**M.A. in Germanic Linguistics**                                          1.1/6.0 (excellent)
    University of Konstanz                                          *2016-2018*

**B.A. in German**                                          3.71/4.0
    University of Shanghai for Science and Technology                                          *2011-2015*

## Publications

**kNN-LM Does Not Improve Open-ended Text Generation**                                          **EMNLP 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* *June - September 2023*
Research Engineer Intern
Improved German grammar error correct product
(+5% copy rate & +1.7% 1-day retention compared to previous product)

**Cultural Institute of the Federal Republic of Germany (Goethe Institut)**
*Non-profit German cultural association, promoting the German language study abroad* *August 2014 - February 2016*
Translator, interpreter, project assistant

**Friedrich Ebert Stiftung Shanghai Office**
*Non-profit German foundation funded by the Government of the Federal Republic of Germany* *April-July 2014*
Translator, project assistant

## 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 (Univeristy 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, GitHub