

# Jiayu Shen

(She/Her)

jiayu.shen.0203@gmail.com

Computational Linguistics | NLP & Bias Analysis | Human-AI Collaboration

## Education

<b>Uppsala University, Sweden</b> <i>Digital Humanities</i> Specialization: NLP, algorithmic bias, cognitive modeling, social implications of AI <b>Key Courses:</b> Natural Language Processing, Language Technology Programming, Language Technology Mathematics, Distant Reading	Aug. 2023 – Jun. 2025
<b>China University of Petroleum, Qingdao, China</b> <i>English Linguistics and Literature</i>	Sep. 2019 – Jun. 2023

## Skills

<b>Programming</b>	Python
<b>NLP Tools &amp; Libraries</b>	NLTK, spaCy, Gensim, Transformers, BERT, RoBERTa, GPT
<b>Machine Learning</b>	Neural Networks, TensorFlow, PyTorch
<b>Data Visualization</b>	Matplotlib, Seaborn
<b>Languages</b>	Mandarin (native), English (fluent), French (basic)

## Research Profile

Interdisciplinary researcher focused on how AI systems replicate and amplify societal bias. Integrating methods from NLP, cognitive science, and AI ethics, I analyze the structural and conceptual foundations of bias in large language models, with emphasis on interpretability and socio-technical mitigation strategies.

## Selected Research Projects

<b>Master Thesis: Uncovering Structural Bias in GPT-2</b> <i>Uppsala University, Supervisor: Matti La Mela</i>	Jan. 2025 – Jun. 2025
---	-----------------------

- Investigates occupational-gender bias formation in GPT-2's semantic space using embedding projection, clustering, and cosine similarity.
- Integrates prototype theory and predictive processing to model how stereotypes are internalized.
- Evaluates representational harms through cognitive heuristics and sociotechnical critique.
- **Skills:** HuggingFace Transformers, embedding, clustering, unsupervised learning

<b>Internship: Topic Modeling of Nicholas of Cusa's Latin Sermons</b> <i>Stockholm University, Prof. Beata Megyesi</i>	Sept. 2024
---	------------

- Designed a hybrid LDA-transformer pipeline to extract latent theological themes.
- Explored historical linguistic patterns using multilingual embeddings.
- Contributed to bridging digital humanities with computational theology.

<b>Poe's Affective Topology: NLP Analysis of Literary Emotion</b> <i>Uppsala University</i>	Feb. 2024
--	-----------

- Applied BERTopic and VADER to map emotional contours in Poe's works.
- Examined interpretability of sentiment outputs in relation to human affective perception.
- Connected NLP sentiment models to cognitive-linguistic theories of valence.

**Endangered Language Modeling: Human-in-the-Loop Qiang NLP**  
*Uppsala University*

Jan. 2024

- Led a digital preservation project for Qiang language using ASR and MT tools.
- Proposed interactive collaboration loop for community verification of outputs.
- Highlighted ethical and cultural implications in linguistic technology.

**Undergraduate Thesis: Corpus Analysis of Lin Yutang's Translation Style**  
*China University of Petroleum*

Jun. 2023

- Compared lexical patterns across Chinese and English editions using corpus tools.
- Applied computational stylistics to investigate translator agency.

## Scholarship

**Cog-SUP Admission and SMART-UP Scholarship in Computational Linguistics** Apr. 2025  
Selected for full scholarship and research admission to the interdisciplinary M1 track at Université Paris Cité (Cogmaster), focused on the intersection of NLP, cognitive modeling, and algorithmic fairness.

**Anders Wall Scholarship for Excellence in Interdisciplinary Studies** Apr. 2024  
Awarded by Uppsala University for outstanding academic performance and potential in AI ethics and cross-field research.

## Referees

### Beáta Megyesi

Professor of Computational Linguistics  
Department of Linguistics, Stockholm University  
[beata.megyesi@ling.su.se](mailto:beata.megyesi@ling.su.se)

### Matti La Mela

Associate Professor (Docent) in Digital Humanities  
Department of ALM, Uppsala University  
[matti.lamela@abm.uu.se](mailto:matti.lamela@abm.uu.se)