

Jiayu Shen

(She/Her)

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NLP & Responsible AI | Bias Mitigation | Digital Humanities & Social Impact

Education

Uppsala University, Sweden

Aug. 2023 – Jun. 2025

Digital Humanities

Specialization: Specialization: NLP, Algorithmic Bias & AI Ethics, Cognitive Modeling, Critical AI Studies (Bias, Ethics, Fairness, Transparency)

Key Courses: Natural Language Processing, Language Technology Programming, Language Technology Mathematics, Distant Reading

China University of Petroleum, Qingdao, China

Sep. 2019 – Jun. 2023

English Linguistics and Literature

Skills

Programming

Python

NLP Tools & Libraries

NLTK, spaCy, Gensim, Transformers, BERT, RoBERTa, GPT

Machine Learning

Neural Networks, TensorFlow, PyTorch

Data Visualization

Matplotlib, Seaborn

Languages

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

Master Thesis: Uncovering Structural Bias in GPT

Jan. 2025 – Jun. 2025

Uppsala University, Supervisor: Matti La Mela

- 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.
- Critically evaluates representational harms using cognitive heuristics, informing sociotechnical approaches to fairer AI.
- **Skills:** HuggingFace Transformers, embedding, clustering, unsupervised learning

Internship: Topic Modeling of Nicholas of Cusa's Latin Sermons

Sept. 2024

Stockholm University, Prof. Beata Megyesi

- 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.

Poe's Affective Topology: NLP Analysis of Literary Emotion

Feb. 2024

Uppsala University

- 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

Jan. 2024

Uppsala University

- 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

Jun. 2023

China University of Petroleum

- 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`

Matti La Mela

Associate Professor (Docent) in Digital Humanities

Department of ALM, Uppsala University

`matti.lamela@abm.uu.se`