Qingcheng Zeng

Ph.D. Student at Northwestern University

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Education

2022– **Ph.D. in Computational Linguistics**
Department of Linguistics, Northwestern University, Evanston, IL

○ Advisor: Professor Rob Voigt

2019–2021 **B.A. in Linguistics**
University of Manchester, Manchester, UK

○ B.A. Dissertation: "*Automatic Sociophonetics: Investigating Language Variation in General Northern English with Machine Learning Based Classification Methods*," supervised by Dr. Patrycja Strycharczuk.

2017–2021 **B.A. in Linguistics**
Zhejiang University, Hangzhou, China

Research Interests

○ **NLP for Social Applications**
My goal is to leverage large language models (LLMs) for gaining insights into global affairs and contributing to societal welfare.
RQ1: In what ways can LLMs enhance our comprehension of global political and economic trends?
RQ2: Is it feasible to apply LLMs to improve biomedical applications? (Refer to our *preprint* on the biomedical NLP toolkit for further information)

○ **Understanding LLMs from Cognitive Science**
My aim is to critically assess and enhance our comprehension of LLMs through the lens of cognitive science.
RQ: In what manner do LLMs process and interpret discourse and pragmatic objectives? Additionally, how can these assessments reveal the limitations of LLMs? (For more details, see our *Findings of ACL 2023*)

○ **Multilingual NLP**
My objective is to refine multilingual LLMs for more efficient cross-lingual adaptation while exploring how they encapsulate cross-lingual and cross-cultural information.
RQ1: In what ways can LLMs be deployed to improve NLP in low-resource languages? (For additional insights, refer to our *IJCAI 2023* paper.)
RQ2: To what extent are multilingual LLMs effective in cross-lingual reasoning? Furthermore, how can we advance their capabilities in high-stakes domains and enhance their interpretability?

Publications

Findings of ACL 2023   Suet-Ying Lam*, **Qingcheng Zeng*#**, Kexun Zhang*, Chenyu You, and Rob Voigt, *2023*, Large Language Models Are Partially Primed in Pronoun Interpretation, In *Findings of the Association for Computational Linguistics: ACL 2023*, pages 9493–9506, Toronto, Canada. Association for Computational Linguistics.

IJCAI 2023   **Qingcheng Zeng***, Lucas Garay*, Peilin Zhou*, Dading Chong, Yining Hua, Jiageng Wu, Yikang Pan, Han Zhou, Rob Voigt, Jie Yang#, *2023*, GreenPLM: Cross-Lingual Transfer of Monolingual Pre-Trained Language Models at Almost No Cost, In *Proceedings of the Thirty-Second International Joint Conference on Artificial Intelligence*, pages 6290–6298, Macau, China. International Joint Conferences on Artificial Intelligence.

COLING 2022   **Qingcheng Zeng** and An-Ran Li, *2022*, A Survey in Automatic Irony Processing: Linguistic, Cognitive, and Multi-X Perspectives, In *Proceedings of the 29th International Conference on Computational Linguistics*, pages 824-836, Gyeongju, Republic of Korea. International Committee on Computational Linguistics.

IS 2022   **Qingcheng Zeng**, Dading Chong, Peilin Zhou, Jie Yang#, *2022*, Low-resource Accent Classification in Geographically-proximate Settings: A Forensic and Sociophonetics Perspective, In *Proceedings of Interspeech 2022*, pages 5308-5312, Incheon, Korea. International Speech Communication Association.

IS 2022   Peilin Zhou, Dading Chong, Helin Wang, **Qingcheng Zeng**, *2022*, Calibrate and Refine! A Novel and Agile Framework for ASR Error Robust Intent Detection, In *Proceedings of Interspeech 2022*, pages 1096-1100, Incheon, Korea. International Speech Communication Association.

Articles in Peer-reviewed Workshop Proceedings

W-NUT 2020   **Qingcheng Zeng**, Xiaoyang Fang, Zhexin Liang, Haoding Meng, *2020*, Fancy Man Launches Zippo at WNUT 2020 Shared Task-1: A Bert Case Model for Wet Lab Entity Extraction, In *Proceedings of the Sixth Workshop on Noisy User-generated Text (W-NUT 2020)*, pages 299-304, Online. Association for Computational Linguistics.

Abstracts and Conference Posters

NWAV 49   Fenqi Wang, Delin Deng, **Qingcheng Zeng**, Ratree Wayland, Kevin Tang, *2021*, A corpus study of the production of syllable-initial /l/ and /n/ in Gan-accented Mandarin: Random forest classification, In *New Ways of Analyzing Variation*, University of Texas at Austin, October 2021

UKLVC 13   **Qingcheng Zeng**, *2021*, Machine learning in sociophonetics: Comparison of different approaches to accent classification and feature extraction, In *UK Language Variation and Change 13*, University of Glasgow, September 2021

Preprints

* denotes authors of equal contribution; # denotes corresponding author

arXiv 2023   Rui Yang*, **Qingcheng Zeng***, Keen You*, Yujie Qiao*, Lucas Huang, Chia-Chun Hsieh, Benjamin Rosand, Jeremy Goldwasser, Amisha D Dave, Tiarnan D.L. Keenan, Emily Y Chew, Dragomir Radev, Zhiyong Lu, Hua Xu, Qingyu Chen, Irene Li#, *2023*, Ascle: A Python Natural Language Processing Toolkit for Medical Text Generation, In arXiv.

arXiv 2022   Zezhong Jin, Dading Chong, Xiao Song, Zhaoyi Liu, Naipeng Ye, **Qingcheng Zeng**, *2022*, Filter and evolve: progressive pseudo label refining for semi-supervised automatic speech recognition, In arXiv.

arXiv 2022   Dading Chong, Helin Wang, Peilin Zhou, **Qingcheng Zeng**, *2022*, Masked Spectrogram Prediction for Self-Supervised Audio Pre-Training, In arXiv.

Honors & Awards

- Q-Step Center Best Dissertation Award (£100)   University of Manchester
- The Dean Award for Achievement   University of Manchester
- Graduate Fellowship   Northwestern University

Work Experience

2021–2022   **Research Assistant in Natural Language Processing**
Zhejiang University, Hangzhou, China

- Conducted research in multilingual NLP and biomedical NLP, supervised by Professor Jie Yang.
- Research Output: effective language model adaptation at *IJCAI 2023*.

Teaching Experiences

2023 Fall   **Teaching Assistant**, *COGSCI 110*, Introduction to Cognitive Science, Northwestern University

2024 Spring   **Teaching Assistant**, *LING 250*, Sound Patterns in Human Language, Northwestern University

Service

Conferences Reviewer   **ICTAI 2022, AACL 2022, AACL-IJCNLP 2023, ICASSP 2024**

Journal Reviewer   **Computer Speech and Language**

Departmental Service   **Colloquium Committee Member 2023-2024**

Skills

- **NLP and LLMs**
  Huggingface Transformers, Deepspeed
- **Machine Learning and Deep Learning**
  PyTorch, TensorFlow, Sclkit-learn

- **Statistics**
  Python, R

References

- **Rob Voigt**
  Department of Linguistics
  Assistant Professor of Linguistics and Computer Science (by courtesy)
  Northwestern University
  Evanston, IL
  robvoigt@northwestern.edu

- **Matt Goldrick**
  Department of Linguistics
  Professor of Linguistics and Psychology (by courtesy)
  Northwestern University
  Evasnton, IL
  matt-goldrick@northwestern.edu