Guoqing Luo

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Research interests

My research interests include large language models (LLMs), machine learning, and natural language processing (NLP). I have been working on NLP/LLM for 7 years. I am currently working on 1) LLM reasoning on social bias detection and mitigation; 2) Post-training for LLM video understanding.

Skills

- **Programming Languages**: Python, C#, C/C++, MATLAB, Lingo
- **Language**: Mandarin (native), English (professional proficiency)
- **Libraries**: Pytorch, Tensorflow, pandas, NumPy, Matplotlib

Education

National Institute of Informatics *Tokyo, Japan*
Visiting Ph.D. in Computing Science *March. 2025 – August. 2025*
Advisor: Prof. Junichi Yamagishi

University of Alberta *Edmonton, Canada*
Ph.D. in Computing Science *Sept. 2023 – Sept. 2027 (expected)*
M.S. in Computing Science *Sept. 2021 – Sept. 2023*
Advisor: Prof. Lili Mou

Wuhan University *Wuhan, China*
B.E. in Computer Science and Technology *Sept. 2017 – June 2021*
OutStanding Thesis: *Dialogue System Relation Extraction Based on Domain Knowledge Graph*

Publications

Prompt-Based Editing for Unsupervised Text Style Transfer [5]
Guoqing Luo, Yutong Han, Lili Mou, Mauajama Firdaus
*In Proceedings of **EMNLP 2023***

KETCHUP: K-Step Return Estimation for Sequential Knowledge Distillation [4]
Jiabin Fan, **Guoqing Luo**, Michael Bowling, Lili Mou
*In Proceedings of **EACL 2026***

UAlberta at SemEval-2024 Task 1: A Potpourri of Methods for Quantifying Semantic Textual Relatedness [3]
Ning Shi, Senyu Li, **Guoqing Luo**, Amirreza Mirzaei, Ali Rafiei, Jai Riley, Hadi Sheikhi, Mahvash Siavashpour, Mohammad Tavakoli, Bradley Hauer and Grzegorz Kondrak
*In Proceedings of **SemEval** 2024 (1st Place on Track A English among all submitted systems)*

Semi-Automated Construction of Sense-Annotated Datasets for Practically Any Language [2]
Jai Riley, Bradley M. Hauer, Nafisa Sadaf Hriti, **Guoqing Luo**, Amirreza Mirzaei, Ali Rafiei, Hadi Sheikhi, Ning Shi, Mahvash Siavashpour, Mohammad Tavakoli and Grzegorz Kondrak
*In Proceedings of **COLING 2025***

An Empirical Study on the Overlapping Problem of Open-Domain Dialogue Datasets [1]
Yuqiao Wen, **Guoqing Luo** and Lili Mou
*In Proceedings of **LREC 2022*** (oral)

Preprints

Investigating Thinking Behaviours of Reasoning-Based Language Models for Social Bias Mitigation [3]
Guoqing Luo, Iffat Maab, Lili Mou, Junichi Yamagishi

Multi-Persona Thinking for Bias Mitigation in Large Language Models [2]
Yuxing Chen, **Guoqing Luo**, Zijun Wu, Lili Mou

RDSGAN: Rank-based distant supervision relation extraction with generative adversarial framework [1]
Guoqing Luo, Jiaxin Pan and Min Peng

Selected research experience

MANGA-UofANLP Lab, University of Alberta *Edmonton, Canada*
Research Assistant | Advisor: Associate Professor Dr. Lili Mou *Sept. 2025 – Jan. 2025*
• An empirical study of quantization of social fairness on multilingual LLMs.
• We found low-resource languages are most vulnerable to quantization; Four-bit quantization methods tend to be more detrimental to social fairness than eight-bit methods; Impact of quantization varies by model scale and family.

MANGA-UofANLP Lab, University of Alberta *Edmonton, Canada*
Research Assistant | Advisor: Associate Professor Dr. Lili Mou *Sept.2025 – May. 2026 (expected)*
• Build up a large-scale fine-grained tennis video understanding benchmark, consisting of 20k samples in terms of easy-, medium- and hard-level datasets.
• Propose a reward function considering multiple features, including player positions, ball movement direction, ball positions, and ball bounces.
• Apply GRPO to multimodal models to improve performance on video understanding.

National Institute of Informatics *Tokyo, Japan*
Visiting Researcher | Advisor: Professor Dr. Junichi Yamagishi *Mar. 2025 – Aug. 2025*
• Investigating reasoning strength of LLM reasoning on the phenomenon of social bias mitigation.
• Uncover two failure pattern of reasoning and design an effective prompting method for mitigation.
• Yield the state-of-the-art performance on the BBQ benchmark.

Work experience

Bytedance Inc. *Beijing, China*
Research intern, ByteDance AI Lab *Feb. 2021 – Jun. 2021*
• Used Pytorch to replicate MOSNet (TensorFlow) and achieved comparable results on two datasets.
• Designed a new end-to-end neural network pipeline for automatic speech quality evaluation.

Shenzhen Sunline Tech Co., Ltd. *Shenzhen, China*
Software engineer intern, Sunline Data *July 2019 – Aug. 2019*
• Crawled data of a thousand-person community in **Python**, used Networkx Python to build a knowledge graph and neo4j for graph data visualization.
• Implemented the Louvain algorithm to find the most important people in the community.

Teaching experience

Department of Computing Science, University of Alberta *Edmonton, Canada*
• CMPUT 267: Basics of Machine Learning Fall 2023, Winter & Fall 2024
• CMPUT 466: Machine Learning Winter 2022, 2023

Awards

• Graduate Teaching Assistantships, University of Alberta 2021,2022,2023,2024,2025
• Departmental Recruitment Scholarship, University of Alberta 2021