

CHUAN MENG

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RESEARCH INTERESTS

I have been working on fine-tuning LLMs and leveraging the reasoning capabilities of LLMs to advance three key directions in IR and NLP:

- conversational agents: conversational search, proactive agents, knowledge-grounded dialogue systems
- neural ranking: LLM-based re-ranking, generative retrieval
- automatic evaluation: LLM-based relevance judgment prediction, query performance prediction

I have significant expertise in **distributed fine-tuning of LLM**: My experience includes leveraging advanced tools, e.g., DeepSpeed for optimising training efficiency and scalability, and LLM quantisation techniques, e.g., Low-Rank Adaptation (LoRA) and QLoRA for enabling efficient fine-tuning and deployment of models on resource-constrained hardware.

EDUCATION

University of Amsterdam (UvA), The Netherlands

October 2021 - Present

Ph.D. in Artificial Intelligence

Supervisors: Prof. dr. [Maarten de Rijke](#) and dr. [Mohammad Aliannejadi](#)

Shandong University, China

September 2018 - June 2021

Master in Computer Science and Technology

Supervisors: Prof. dr. [Zhumin Chen](#), dr. [Pengjie Ren](#), and dr. [Zhaochun Ren](#)

Master's thesis "Research on Knowledge-Grounded Non-Task-Oriented Conversational System" [\[pdf\]](#)

Shandong Normal University, China

September 2014 - June 2018

Bachelor in Electronic Commerce

WORK EXPERIENCE

Amazon, United Kingdom

August 2024 - Present

Applied scientist intern, focusing on Rufus, Amazon's generative shopping assistant

Manager: Dr. [Gabriella Kazai](#). Mentor: Dr. [Francesco Tonolini](#).

PUBLICATIONS

As of November 2024, I have 244 citations (Google Scholar) with an H-index of 8.

I have authored papers published in proceedings, such as SIGIR, EMNLP, CIKM, and AAAI.

1. **Query Performance Prediction using Relevance Judgments Generated by Large Language Models**

Chuan Meng, Negar Arabzadeh, Arian Askari, Mohammad Aliannejadi, and Maarten de Rijke
Under review for TOIS: ACM Transactions on Information Systems

[pdf](#), [code](#)

2. **Generative Retrieval with Few-shot Indexing**

Arian Askari*, **Chuan Meng*** (co-first author), Mohammad Aliannejadi, Zhaochun Ren, Evangelos Kanoulas, and Suzan Verberne

Submitted to ARR: ACL Rolling Review

[pdf](#)

3. **Self-seeding and Multi-intent Self-instructing LLMs for Generating Intent-aware Information-Seeking Dialogs**
Arian Askari, Roxana Petcu, **Chuan Meng**, Mohammad Aliannejadi, Amin Abolghasemi, Evangelos Kanoulas, and Suzan Verberne.
Submitted to ARR: ACL Rolling Review
[pdf](#), [code](#)
4. **Can We Use Large Language Models to Fill Relevance Judgment Holes?**
Zahra Abbasiantaeb, **Chuan Meng**, Leif Azzopardi, Mohammad Aliannejadi
LLM4Eval: The First Workshop on Large Language Models (LLMs) for Evaluation in Information Retrieval
[pdf](#), [code](#)
5. **Ranked List Truncation for Large Language Model-based Re-Ranking**
Chuan Meng, Negar Arabzadeh, Arian Askari, Mohammad Aliannejadi, and Maarten de Rijke.
SIGIR 2024: The 47th International ACM SIGIR Conference on Research and Development in Information Retrieval
[pdf](#), [code](#)
6. **Query Performance Prediction for Conversational Search and Beyond**
Chuan Meng
SIGIR 2024: The 47th International ACM SIGIR Conference on Research and Development in Information Retrieval
[pdf](#)
7. **LLM-based Retrieval and Generation Pipelines for TREC Interactive Knowledge Assistance Track (iKAT) 2023.**
Zahra Abbasiantaeb, **Chuan Meng**, David Rau, Antonis Krasakis, Hossein A. Rahmani, and Mohammad Aliannejadi.
TREC 2023: The Thirty-Second Text REtrieval Conference (Our submitted runs ranked 1st)
[pdf](#)
8. **Expand, Highlight, Generate: RL-driven Document Generation for Passage Reranking**
Arian Askari, Mohammad Aliannejadi, **Chuan Meng**, Evangelos Kanoulas, and Suzan Verberne
EMNLP 2023 (main conference): The 2023 Conference on Empirical Methods in Natural Language Processing
[pdf](#), [code](#)
9. **System Initiative Prediction for Multi-turn Conversational Information Seeking**
Chuan Meng, Mohammad Aliannejadi, and Maarten de Rijke
CIKM 2023: The 32nd ACM International Conference on Information and Knowledge Management
[pdf](#), [code](#)
10. **Query Performance Prediction: From Ad-hoc to Conversational Search**
Chuan Meng, Negar Arabzadeh, Mohammad Aliannejadi, and Maarten de Rijke
SIGIR 2023: The 46th International ACM SIGIR Conference on Research and Development in Information Retrieval
[pdf](#), [code](#)
11. **Performance Prediction for Conversational Search Using Perplexities of Query Rewrites**
Chuan Meng, Mohammad Aliannejadi, and Maarten de Rijke
QPP++ 2023: Query Performance Prediction and Its Evaluation in New Tasks Workshop co-located with The 45th European Conference on Information Retrieval
[pdf](#), [code](#)
12. **Initiative-Aware Self-Supervised Learning for Knowledge-Grounded Conversations**
Chuan Meng, Pengjie Ren, Zhumin Chen, Zhaochun Ren, Tengxiao Xi, and Maarten de Rijke
SIGIR 2021: The 44th International ACM SIGIR Conference on Research and Development in Information Retrieval
[pdf](#)
13. **Conversations Powered by Cross-Lingual Knowledge**

Weiwei Sun^{*}, **Chuan Meng**^{*} (co-first author), Qi Meng, Zhaochun Ren, Pengjie Ren, Zhumin Chen, and Maarten de Rijke

SIGIR 2021: The 44th International ACM SIGIR Conference on Research and Development in Information Retrieval

[pdf](#), [code](#)

14. **DukeNet: A Dual Knowledge Interaction Network for Knowledge-Grounded Conversation**

Chuan Meng, Pengjie Ren, Zhumin Chen, Weiwei Sun, Zhaochun Ren, Zhaopeng Tu, and Maarten de Rijke

SIGIR 2020: The 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval

[pdf](#), [code](#)

15. **RefNet: A Reference-aware Network for Background Based Conversation**

Chuan Meng, Pengjie Ren, Zhumin Chen, Christof Monz, Jun Ma, and Maarten de Rijke

AAAI 2020: The Thirty-Fourth AAAI Conference on Artificial Intelligence.

[pdf](#), [code](#)

ACADEMIC SERVICE

- Workshop organization:
 - **QPP++2025: Query Performance Prediction and its Applications in the Era of Large Language Models**
Chuan Meng, Guglielmo Faggioli, Mohammad Aliannejadi, Nicola Ferro, and Josiane Mothe
ECIR 2025: The 47th European Conference on Information Retrieval
(Will be held from the 6th to the 10th of April 2025 in Lucca, Italy)
- Program committee member: ACL 2023, EMNLP 2023–2021, COLING 2025, 2022 & 2020, SIGIR 2024, CIKM 2024–2022, The Web Conf 2024, WSDM 2025–2022, ECIR 2025–2024, ICTIR 2023, SIGKDD 2022, ECML/PKDD 2022–2021, AAAI 2021
- Journal reviewer: Transactions on Information Systems (TOIS), Information Processing and Management (IPM)
- Webmaster for the [IRLab website](#), 2023–present
- Chair for internal seminars at IRLab, 2023

TEACHING & SUPERVISION

- Tutorial organization:
 - **Query Performance Prediction: Theory, Techniques and Applications**
Negar Arabzadeh, **Chuan Meng**, Mohammad Aliannejadi, and Ebrahim Bagheri
WSDM 2025: The 18th ACM International Conference on Web Search and Data Mining
(Will be held from the 10th to the 14th of March 2025 in Hannover, Germany)
 - **Query Performance Prediction: Techniques and Applications in Modern Information Retrieval**
Negar Arabzadeh, **Chuan Meng**, Mohammad Aliannejadi, and Ebrahim Bagheri
SIGIR-AP 2024: The 2nd ACM SIGIR-AP conference
(Will be held from the 9th to the 12th of December 2024 in Tokyo, Japan)
 - **Query Performance Prediction: From Fundamentals to Advanced Techniques**
Negar Arabzadeh, **Chuan Meng**, Mohammad Aliannejadi, and Ebrahim Bagheri
ECIR 2024: The 46th European Conference on Information Retrieval
[pdf](#), [slides](#)
- Teaching assistant
 - **Course**: Information Retrieval
Institution and year: University of Amsterdam

Year: 2023

My responsibilities: project design and grading

- **Course:** Information Retrieval

Institution: University of Amsterdam

Year: 2022

My responsibilities: project design and grading

- **Course:** Information Retrieval

Institution: Shandong University

Year: 2020

My responsibilities: assignment design, project design and grading

- **Course:** Natural Language Processing

Institution: Shandong University

Year: 2019

My responsibilities: assignment design, project design and grading

- PhD mentorship (Research-oriented): Lili Lu, Universit della Svizzera italiana (USI), with Prof. dr. [Fabio Crestani](#)

INVITED TALKS

- **Opportunities and Challenges of LLMs in Information Retrieval**
21 October 2024, University of Glasgow
Host: Iadh Ounis, professor at the University of Glasgow
[slides](#), [post](#)
- **Predicting the Right Moment for System Initiative in Mixed-Initiative Conversational Search**
26 August 2024, Amazon (London)
Host: Gabriella Kazai, principal applied scientist at Amazon
[slides](#)
- **Opportunities and Challenges of LLMs in Information Retrieval**
14 August 2024, Objective, Inc.
Host: Pablo Mendes, co-founder & CEO at Objective, Inc.
[slides](#)
- **Opportunities and Challenges of LLMs in Information Retrieval**
17 April 2024, Amazon (Seattle)
Host: Shervin Malmasi, applied science manager at Amazon
[slides](#)
- **System Initiative Prediction and Query Performance Prediction for Conversational Information Seeking**
3 Nov 2023, University College London (UCL)
Host: Xi Wang, lecturer at the University of Sheffield
[slides](#), [post](#)
- **Query Performance Prediction for Conversational Search**
18 May 2023, University of Glasgow
Host: Iadh Ounis, professor at the University of Glasgow
[slides](#), [post](#)

RESEARCH FUNDING PROPOSALS

During my master's at Shandong University, I was involved in drafting the methodology sections for three research funding proposals.

- **Development of an AI-assisted Writing Robot System Based on News Reporting Scenarios**
National Key Research and Development Program project (Project No.: 2020YFB1406700)

- **Research on Explainable Medical Health Question-Answering Technology Based on Multi-Source Heterogeneous Data Fusion**
National Natural Science Foundation of China (NSFC) project (Project No.: 61972234)
- **Research on Conversational Recommendation Systems and Functional Enhancements Based Primarily on Implicit Feedback Data**
National Natural Science Foundation of China (NSFC) project (Project No.: 62072279)

SCHOLARSHIPS & AWARDS

- Excellent Master's Thesis of Shandong Province, 2022
- National Scholarship (China), 2020/2016
- Outstanding Graduates of Shandong Province, 2021/2017
- SIGIR Student Travel Grant, 2020
- Scholarship for Outstanding Postgraduate Cadres of Shandong University, 2020/2019
- AAAI Student Scholar Scholarship, 2019
- Academic Scholarship for Master Students of Shandong University, 2019
- Outstanding Students of Shandong Province, 2017

RESOURCES

I have curated the following resources:

- a [code repository](#) (**over 1,200 visitors**) providing scripts for fine-tuning open-source LLMs to generate relevance judgments, within a Python/PyTorch framework.
- a [code repository](#) (**over 2,200 visitors**) providing a comprehensive implementation of query performance prediction (QPP) methods, within a unified Python/PyTorch framework.
- a [code repository](#) (**over 700 visitors**) offering a comprehensive implementation of ranked list truncation methods, within a unified Python/PyTorch framework.
- a [paper reading list](#) (**over 260 stars**) on knowledge-grounded dialogue systems.

I also contributed to [Pyserini](#), a Python toolkit for reproducible information retrieval research.

REFERENCES

Prof. dr. [Maarten de Rijke](#)

Distinguished University Professor at the University of Amsterdam
m.derijke@uva.nl

Dr. [Mohammad Aliannejadi](#)

Assistant professor at the University of Amsterdam
m.aliannejadi@uva.nl

Dr. [Zhaochun Ren](#)

Associate professor at Leiden University
z.ren@liacs.leidenuniv.nl