

# CHUAN MENG

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## RESEARCH INTERESTS

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I have been actively researching two core areas in AI: Information Retrieval (IR) and Natural Language Processing (NLP). My work focuses on leveraging machine learning, large language models (LLMs) to drive advancements in three key directions:

- **Conversational agents:** proactive conversational search, knowledge-grounded dialogue systems
- **Model- and data-efficient neural ranking:** LLM-based re-ranking, generative retrieval, synthetic data generation
- **Automatic evaluation:** LLM-based relevance judgment prediction, query performance prediction

## EDUCATION

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**University of Amsterdam, The Netherlands**

*October 2021 - Present*

Ph.D. in Artificial Intelligence

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

PhD thesis: Optimizing Agentic Workflows for Information Access

**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

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**Amazon, United Kingdom**

*August 2024 - January 2025*

Applied Scientist Intern, focusing on LLM-powered proactive conversational agents

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

## PUBLICATIONS

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As of May 2025, I have 352 citations (Google Scholar) with an H-index of 12.

I have authored papers published in proceedings/journals, such as ACL, SIGIR, EMNLP, CIKM, NAACL, AAAI, ECIR, and TOIS.

### 1. UniConv: Unifying Retrieval and Response Generation for Large Language Model in Conversation

Fengran Mo, Yifan Gao, **Chuan Meng**, Xin Liu, Zhuofeng Wu, Kelong Mao, Zhengyang Wang, Pei Chen, Zheng Li, Xian Li, Bing Yin, Meng Jiang

**ACL 2025:** The 63rd Annual Meeting of the Association for Computational Linguistics to appear

### 2. Bridging the Gap: From Ad-hoc to Proactive Search in Conversations

**Chuan Meng**, Francesco Tonolini, Fengran Mo, Nikolaos Aletras, Emine Yilmaz, and Gabriella Kazai

**SIGIR 2025:** The 48th International ACM SIGIR Conference on Research and Development in Information Retrieval

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

3. **Query Performance Prediction using Relevance Judgments Generated by Large Language Models**  
**Chuan Meng**, Negar Arabzadeh, Arian Askari, Mohammad Aliannejadi, and Maarten de Rijke  
**TOIS**: ACM Transactions on Information Systems  
[pdf](#), [code](#)
4. **SOLID: 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.  
**NAACL 2025**: The 2025 Annual Conference of the Nations of the Americas Chapter of the Association for Computational Linguistics  
[pdf](#), [code](#)
5. **Zero-Shot and Efficient Clarification Need Prediction in Conversational Search**  
Lili Lu, **Chuan Meng**, Federico Ravenda, Mohammad Aliannejadi and Fabio Crestani  
**ECIR 2025**: The 47th European Conference on Information Retrieval  
[pdf](#), [code](#)
6. **Improving the Re-Usability of Conversational Search Test Collections**  
Zahra Abbasiantaeb, **Chuan Meng**, Leif Azzopardi and Mohammad Aliannejadi  
**ECIR 2025**: The 47th European Conference on Information Retrieval  
[pdf](#), [code](#)
7. **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](#)
8. **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](#)
9. **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](#)
10. **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](#)
11. **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](#)
12. **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](#)
13. **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](#)

14. **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](#)

15. **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](#)

16. **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](#)

17. **Conversations Powered by Cross-Lingual Knowledge**

Weiwei Sun<sup>\*</sup>, **Chuan Meng**<sup>\*</sup> (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](#)

18. **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](#)

19. **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

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- 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  
6th–10th April 2025, Lucca, Italy  
[pdf](#), [website](#)
- Program committee member: ACL 2023, EMNLP 2023–2021, SIGIR 2025–2024, COLING 2025, 2022 & 2020, CIKM 2025–2022, The Web Conf 2025–2024, WSDM 2025–2022, ECIR 2025–2024, ICTIR 2025 & 2023, SIGKDD 2022, ECML/PKDD 2022–2021, AAAI 2021
- ACL Rolling Review (ARR) reviewer 2025
- Journal reviewer: Transactions on Information Systems (TOIS), Information Processing and Management (IP&M)

## TEACHING & SUPERVISION

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- Tutorial organization:
    - **Conversational Search: From Fundamentals to Frontiers in the LLM Era**  
Fengran Mo, **Chuan Meng**, Mohammad Aliannejadi, and Jian-Yun Nie  
**SIGIR 2025**: The 48th International ACM SIGIR Conference on Research and Development in Information Retrieval  
13th–17th July 2025, Padua, Italy  
to appear
    - **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  
10th–14th March 2025, Hanover, Germany  
[pdf](#), [slides](#)
    - **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  
9th–12th December 2024, Tokyo, Japan  
[pdf](#), [slides](#)
    - **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  
24th–28th March 2024, Glasgow, UK  
[pdf](#), [slides](#)
  - Teaching assistant
    - **Course**: Information Retrieval (about **60** students)  
**Institution**: University of Amsterdam  
**Year**: 2023  
**My responsibilities**: project design and grading
    - **Course**: Information Retrieval (about **60** students)  
**Institution**: University of Amsterdam  
**Year**: 2022  
**My responsibilities**: project design and grading
    - **Course**: Information Retrieval (about **60** students)  
**Institution**: Shandong University  
**Year**: 2020  
**My responsibilities**: assignment design, project design and grading
    - **Course**: Natural Language Processing (about **70** students)  
**Institution**: Shandong University  
**Year**: 2019  
**My responsibilities**: assignment design, project design and grading
  - PhD mentorship (Research-oriented): [Lili Lu](#), Università della Svizzera italiana (USI), with Prof. dr. [Fabio Crestani](#)

## INVITED TALKS

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- **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](#)

## ADMINISTRATION ACTIVITIES

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- Manager for the [IRLab LinkedIn](#) account, 2025–present
- Webmaster for the [IRLab website](#), 2023–2024
- Chair for internal seminars at IRLab, 2023
- Lead organizer of the IRLab BBQ event, 2023

## RESEARCH FUNDING PROPOSALS

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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

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- 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

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I have curated the following resources:

- a [code repository](#) (**over 1,800 visitors**) providing scripts for fine-tuning open-source LLMs to generate relevance judgments, within a Python/PyTorch framework.
- a [code repository](#) (**over 2,800 visitors**) providing a comprehensive implementation of query performance prediction (QPP) methods, within a unified Python/PyTorch framework.
- a [code repository](#) (**over 1,100 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.

Also, I have contributed to key open-source toolkits in information retrieval, including:

- [Pyserini \(v0.19.2\)](#), a Python toolkit for reproducible information retrieval research.
- [Tevatron](#), a flexible and efficient Python toolkit for training and inference of neural retrieval models.

## REFERENCES

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

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Dr. [Mohammad Aliannejadi](#)

Assistant professor at the University of Amsterdam

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Dr. [Zhaochun Ren](#)

Associate professor at Leiden University

[z.ren@liacs.leidenuniv.nl](mailto:z.ren@liacs.leidenuniv.nl)

Prof. dr. [Fabio Crestani](#)

Full Professor at Università della Svizzera Italiana (USI)

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