CHUAN MENG

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RESEARCH INTERESTS

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
- Neural Ranking: LLM-based re-ranking, generative retrieval
- Automatic Evaluation: LLM-based relevance judgment prediction, query performance prediction

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 - January 2025*
Applied Scientist Intern, focusing on LLM-powered conversational agents
Manager: Dr. Gabriella Kazai. Mentor: Dr. Francesco Tonolini.

PUBLICATIONS

As of February 2025, I have 275 citations (Google Scholar) with an H-index of 8.

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

1. **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 (accepted subject to minor revisions)
   pdf, code
2. **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
   to appear
3. **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
   to appear

4. **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. **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
6. **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
7. **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
8. **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
9. **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
10. **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
11. **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
12. **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
13. **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

14. **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
15. **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
16. **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
17. **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
    6th–10th April 2025, Lucca, Italy
    website
- Program committee member: ACL 2023, EMNLP 2023–2021, SIGIR 2025–2024, COLING 2025, 2022 & 2020, CIKM 2024–2022, The Web Conf 2025–2024, 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 (IP&M)
- 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
    10th–14th March 2025, 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
    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

- **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 1,800 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 contributed to Pyserini (v0.19.2), a Python toolkit for reproducible information retrieval research. I contributed to Tevatron, a flexible and efficient toolkit that enables training and inference for neural retrieval models.

REFERENCES

Prof. dr. Maarten de Rijke
Distinguished University Professor at the University of Amsterdam
m.derijke@uva.nl

Prof. dr. Fabio Crestani
Full Professor at Università della Svizzera Italiana (USI)
fabio.crestani@usi.ch

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