

# Jin Huang

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## Research Interests

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Information retrieval, recommender systems, trustworthy AI, and reasoning

## Education

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### University of Amsterdam

Amsterdam, the Netherlands

PhD candidate in Computer Science

July 2019 - Oct. 2023

Advisor: Prof. dr. Maarten de Rijke, Dr. Herke van Hoof, Dr. Harrie Oosterhuis

Thesis: Learning Recommender Systems from Biased User Interactions

### Renmin University of China

Beijing, China

M.E. in Computer Science

Sep. 2016 - July 2019

Advisor: Prof. dr. Ji-Rong Wen, Prof. dr. Xin Zhao

Thesis: Research on Sequential Recommendation Algorithms with Knowledge Reasoning

### Renmin University of China

Beijing, China

B.E. in Computer Science

Sep. 2012 - July 2016

Advisor: Prof. dr. Xin Zhao

Thesis: A Comparison of Recommendation Methods with Learning Distributed Representations

## Publications

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Citation metrics (as of Oct. 2023): *h-index* is 6, with 703 citations.

### Correcting for Multifactorial Bias in Recommender Systems

*Jin Huang, Harrie Oosterhuis, Masoud Mansoury, Herke van Hoof, Maarten de Rijke*

Under review at 17th International Conference on Web Search and Data Mining (WSDM). 2024.

### Repetition and exploration in offline reinforcement learning-based recommendations

*Ming Li, Jin Huang, Maarten de Rijke*

DRL4IR workshop at 32nd ACM International Conference on Information and Knowledge Management (DRL4IR@CIKM). 2023.

### State Encoders in Reinforcement Learning for Recommendation: A Reproducibility Study

*Jin Huang, Harrie Oosterhuis, Bunyamin Cetinkaya, Thijs Rood, Maarten de Rijke*

45th International ACM SIGIR Conference on Research & Development in Information Retrieval (SIGIR). 2022: 2738–2748.

### It Is Different When Items Are Older: Debiasing Recommendations When Selection Bias and User Preferences are Dynamic

*Jin Huang, Harrie Oosterhuis, Maarten de Rijke*

15th International Conference on Web Search and Data Mining (WSDM). 2022: 381–389.

### Keeping Dataset Biases out of the Simulation: A Debiased Simulator for Reinforcement Learning based Recommender Systems

*Jin Huang, Harrie Oosterhuis, Maarten de Rijke, Herke van Hoof*

14th ACM Conference on Recommender Systems (RecSys). 2020: 190–199.

### Taxonomy-Aware Multi-Hop Reasoning Networks for Sequential Recommendation

*Jin Huang, Zhaochun Ren, Wayne Xin Zhao, Gaole He, Ji-Rong Wen, Daxiang Dong*

12th ACM International Conference on Web Search and Data Mining (WSDM). 2019: 573–581.

### KB4Rec: A Data Set for Linking Knowledge Bases with Recommender Systems

*Wayne Xin Zhao, Gaole He, Kunlin Yang, Hongjian Dou, Jin Huang, Siqi Ouyang, Ji-Rong Wen*

Data Intelligence, 2019, 1(2): 121–136.

## Improving Sequential Recommendation with Knowledge-Enhanced Memory Networks

Jin Huang, Wayne Xin Zhao, Hongjian Dou, Ji-Rong Wen, Edward Y. Chang

41st International ACM SIGIR Conference on Research & Development in Information Retrieval (SIGIR). 2018: 505-514.

## Learning distributed representations for recommender systems with a network embedding approach

Wayne Xin Zhao, Jin Huang, Ji-Rong Wen

Asia information retrieval symposium (AIRS). Springer, Cham, 2016: 224-236.

## Awards & Recognition

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- Student Travel Award in SIGIR, 2022 & 2018
- Student Travel Award in WSDM, 2022
- China National Scholarship, 2018
- Excellent postgraduate in Renmin University, 2017
- CCF Elite Collegiate Award, 2016
- Sa Elite Scholarship, 2016
- First prize in China University Innovation Research and Training Program (UIRT), 2016
- First prize in China National College Student Information Security Contest, 2015

## Working Experience

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### Amazon

Applied Scientist Intern - Alexa AI-Natural Understanding

Worked on decomposing complex user goals into a series of simple sub-questions.

Seattle, United States

July 2022 - Nov 2022

### Microsoft Research Asia

Intern - Social Computing Group

Worked on designing a knowledge graph-based recommender system for a financial institution.

Beijing, China

May 2018 - Nov. 2018

## Teaching Experience

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### Teaching assistant in University of Amsterdam

Teaching assistant for Recommender System course

Designed and gave lectures and supervised students to reproduce recommendation methods.

Amsterdam, the Netherlands

June 2023 - July 2023

### Teaching assistant in University of Amsterdam

Teaching assistant for Information Retrieval course

Worked on exercise/exam designing, grading, and answering students' questions.

Amsterdam, the Netherlands

Feb. 2023 - March 2023

### Teaching assistant in University of Amsterdam

Teaching assistant for Reinforcement Learning course

Worked on exercise/exam designing, grading, and answering students' questions.

Amsterdam, the Netherlands

Sep. 2021 - Oct. 2021

### Teaching assistant in University of Amsterdam

Teaching assistant for Reinforcement Learning course

Worked on exercise/exam designing, grading, and answering students' questions.

Online

Sep. 2020 - Oct. 2020

### Student supervision in University of Amsterdam

Amsterdam, the Netherlands

- Margot Pauelsen and Calvin law (BSc., 2023): Choice of Optimizers for Recommendation Methods
- Cas Hortensius (MSc., 2022): Comparing Collaborative Filtering Recommender Systems for Hospitality
- Helma Koopmans (MSc., 2022): Fairness in Two-sided Markets
- Thijs Rood and Bunyamin Çetinkaya (BSc., 2021): Choice of State Encoder for Reinforcement Learning for Recommendations
- Luke de Keijzer (MSc., 2020): Improving Company "Look-a-Likes" Finding Algorithm with the use of Graph

## Professional Activities

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- **Workshop Organizer:** Organizing the 4th Workshop on Deep Reinforcement Learning for Information Retrieval at CIKM, Oct 2023.
- **Tutorial Organizer:** Organizing tutorial on Recent Advances in the Foundations and Applications of Unbiased Learning to Rank at SIGIR, July 2023.
- **Reading group chair in IRLab:** Chairing the reading group on reinforcement learning for information retrieval in IRLab, Univeristy of Amsterdam, 2022.
- **Internal talk chair in IRLab:** Chairing the internal research presentations in IRLab, Univeristy of Amsterdam, 2021.

- **Journal Reviewer:** TOIS 2020/2022, IPM 2023, TIST 2023
- **Reviewer:** SIGIR 2022, ECML PPKD 2022, CCL 2022, CCL 2023, WSDM 2023/2024
- **Sub-reviewer:** RecSys 2020, SIGIR 2020, ICTIR 2021, ECIR 2022, ICTIR 2022, TheWebConf2023

## Presentations

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- **Conference talks:** SIGIR 2018, WSDM 2019, Recsys 2020, WSDM 2022, SIGIR 2022
- **Invited talk at SEA:** Search Engines Amsterdam, Oct 2020/June 2022/Dec 2022/Sep 2023
- **Encore talk at Sim4IR:** Workshop on Simulation for Information Retrieval Evaluation Co-located with SIGIR 2021 (Virtual Event), July 15, 2021

## Results

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### A pipeline of reinforcement learning for recommendations (RL4Rec)

*Development of the pipeline of reinforcement learning for recommendations*

*April 2022*

Designed and implemented the pipeline of a reinforcement learning-based recommendation policy that learns from interacting with simulated users and can be integrated with different state encoder components.

<https://github.com/BetsyHJ/RL4Rec>

### A debiasing framework for debiasing in the dynamic scenario (DANCER)

*Development of the debiasing framework for dynamic selection bias correction*

*Feb. 2022*

Designed and implemented the framework for debiasing in the dynamic scenario where both selection bias and user preferences are dynamic.

<https://github.com/BetsyHJ/DANCER>

### A debiased simulator for offline learning and evaluation (SOFA)

*Development of this debiased simulator*

*Nov. 2020*

Designed and implemented the debiased simulator to simulate user feedback, enabling the learning and evaluation of reinforcement learning for recommendations.

<https://github.com/BetsyHJ/SOFA>

### A unified and efficient recommendation library (RecBole)

*Participation in the development of this recommendation library*

*Nov. 2020*

Designed and implemented the KSR model, a sequential recommendation model with knowledge-enhanced memory networks.

<https://recbole.io/index.html>

## Skills

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- **Technologies:** L<sup>A</sup>T<sub>E</sub>X, Python, Tensorflow, Pytorch, Neo4j
- **Language:** English, Chinese

## References

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- **Prof. dr. Maarten de Rijke:** University of Amsterdam, [m.derijke@uva.nl](mailto:m.derijke@uva.nl)
- **Dr. Harrie Oosterhuis:** Radboud University Nijmegen, [harrie.oosterhuis@ru.nl](mailto:harrie.oosterhuis@ru.nl)