Jin Huang

PhD candidate – University of Amsterdam – the Netherlands

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Jin Huang • Jin Huang

Research Interests

Information retrieval, recommender systems, large language models, trustworthy AI, and reinforcement learning

Education

University of Amsterdam Amsterdam, the Netherlands
PhD candidate in Computer Science *July 2019 - Nov. 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

Working Experience

Amazon **Seattle, United States**
Applied Scientist Intern - Alexa AI-Natural Understanding *July 2022 - Nov. 2022*
Worked on decomposing complex user queries into multiple easy-to-execute sub-queries by leveraging large language models.

Microsoft Research Asia **Beijing, China**
Intern - Social Computing Group *May 2018 - Nov. 2018*
Worked on designing a knowledge graph-based recommender system for a financial institution.

Teaching Experience

Student supervision at 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

Teaching assistant at University of Amsterdam **Amsterdam, the Netherlands**
Teaching assistant for Recommender System course *June 2023 - July 2023*
Designed and gave lectures and supervised students to reproduce recommendation methods.

Teaching assistant at University of Amsterdam **Amsterdam, the Netherlands**
Teaching assistant for Information Retrieval course *Feb. 2023 - March 2023*
Worked on exercise/exam designing, grading, and answering students' questions.

Teaching assistant at University of Amsterdam **Amsterdam, the Netherlands**
Teaching assistant for Reinforcement Learning course *Sep. 2021 - Oct. 2021*
Worked on exercise/exam designing, grading, and answering students' questions.

Teaching assistant at University of Amsterdam **Online**
Teaching assistant for Reinforcement Learning course *Sep. 2020 - Oct. 2020*
Worked on exercise/exam designing, grading, and answering students' questions.

Awards & Recognition

- 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

Publications

Citation metrics (as of Nov. 2023): h-index is 7, with 797 citations.

Correcting for Multifactorial Bias in Recommender Systems
Jin Huang, *Harrie Oosterhuis, Masoud Mansoury, Herke van Hoof, Maarten de Rijke*
Under review. 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.

Professional Activities

- **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.
- **Discussion group chair in IRLab**: Chairing the discussion group on large language models in IRLab, Univeristy of Amsterdam, 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

- **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

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

- **Technologies:** LaTeX, Python, Tensorflow, Pytorch, Neo4j
- **Language:** English, Chinese

References

- **Prof. dr. Maarten de Rijke**: University of Amsterdam, m.derijke@uva.nl
- **Dr. Zhaochun Ren**: Leiden University, z.ren@liacs.leidenuniv.nl
- **Dr. Harrie Oosterhuis**: Radboud University Nijmegen, harrie.oosterhuis@ru.nl