

Haolun Wu

Ph.D. student, Computer Science
McGill University & MILA - Quebec AI Institute
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Research Interests

Information Retrieval · Recommender System · Fairness · Continual Learning · Trustworthy AI

Academic Studies & Diplomas

- 2021-present **Ph.D. Computer Science**, McGill University & MILA, Montreal, Canada.
Advisor: [Xue \(Steve\) Liu](#) (FCAE, FIEEE), [Fernando Diaz](#) (CIFAR AI Chair)
Supervisory committee: [Laurent Charlin](#) (CIFAR AI Chair), [Golnoosh Farnadi](#) (CIFAR AI Chair)
Expected graduation date: Jun. 2025.
- 2019-2021 **M.Sc. Computer Science**, McGill University & MILA, Montreal, Canada.
Thesis title: Balancing Fairness in Multi-stakeholder Recommendation via Multi-Objective Optimization
- 2018-2018 **International Exchange**, University of California, San Diego, San Diego, USA.
- 2015-2019 **B.E. Computer Science and Engineering**, Northeastern University, Shenyang, China.
Excellent Graduation Thesis. Outstanding Graduate. Outstanding Student for all years.

Relevant Industrial Experience

- Sep. 2022- **Research Intern (offer accepted)**, Google Research, Mountain View, USA.
- Dec. 2022 Mentor: [Maryam Karimzadehgan](#)
- Research on topics (1) Multi-interest embedding, (2) Uncertainty embedding, and (3) Provider fairness in recommendation.
- Jun. 2021- **Support Researcher, PhD Intern**, Huawei Noah's Ark Lab, Montreal, Canada.
- Jun. 2022 Mentor: [Yingxue Zhang](#)
- Conduct one project on efficiently training the implicit feedback data for recommendation through adaptively learning the data importance.
 - Conduct one project on efficiently utilizing auxiliary information in recommendation through self-supervised learning and contrastive alignment.

Publications

Conference Proceedings

- CIKM 2022 Haolun Wu, Chen Ma, Yingxue Zhang, Xue Liu, and Mark Coates. **“Adapting Triplet Importance of Implicit Feedback for Personalized Recommendation”**. In the 31st ACM International Conference on Information and Knowledge Management (CIKM 2022). Atlanta, USA, Oct. 2022.
- SIGIR 2022 Haolun Wu, Bhaskar Mitra, Chen Ma, Fernando Diaz, and Xue Liu. **“Joint Multisided Exposure Fairness for Recommendation”**. In the 45th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2022, acceptance rate: $161/794 = 20\%$). Madrid, Spain, Jul. 2022.
- AAAI 2021 Chen Ma, Liheng Ma, Yingxue Zhang, Haolun Wu, Xue Liu, and Mark Coates. **“Knowledge-Enhanced Top-K Recommendation in Poincaré Ball”**. In the 35th AAAI Conference on Artificial Intelligence (AAAI 2021, acceptance rate: $1692/7911 = 21.4\%$). Virtual, Feb. 2021.

Journal Articles

- TOIS 2022 Haolun Wu, Chen Ma, Bhaskar Mitra, Fernando Diaz, and Xue Liu. **“A Multi-objective Optimization Framework for Multi-stakeholder Fairness-aware Recommendation”**. ACM Transactions on Information Systems (TOIS).

Patents

- IP Australia
2017 Haolun Wu, Haodong Lai, Yutao Liu, Wentao Zhou, and Qinlai Li. **“A Method For Real-Time Image Style Transfer Based On Conditional Generative Adversarial Networks ”**.

In Submission or Under Review

Conference Proceedings

- WSDM 2023 Ziqi Zhao, Wei Guo, Haolun Wu, Yingxue Zhang, Jianye Hao, and Ruiming Tang. **“Coarse-to-Fine Multi-Interest Learning Framework for Multi-Behavior Recommendation”**. For the 16th ACM International Conference on Web Search and Data Mining (WSDM 2023).
- Under Review
- ICDE 2023 Haolun Wu, Chen Ma, Yingxue Zhang, Xue Liu, and Mark Coates. **“Self-supervised Contrastive Alignment for Tag-enhanced Recommendation”**. For the 39th IEEE International Conference on Data Engineering (ICDE 2023).
- Under Review

Survey Papers

- Haolun Wu, Yansen Zhang, Chen Ma, Bhaskar Mitra, Fernando Diaz, Nick Craswell, and Xue Liu. **“Diversity in Search and Recommendation: A Survey”**.
- Haolun Wu, Hillary Tao, Jose Diaz, Peng Xu, and Shuo Wang. **“Intelligent Techniques in Dynamic Call Routing: A Survey”**.

Grants & Fellowships

- 2022 MITACS Accelerate Fellowship (\$90,000, share 50%)

Lead PI: Xue (Steve) Liu; Industrial Mentor: Shuo Wang

Title: Fairness-aware Matching for Dynamic Predictive Behavior Matching

Funding Body: Bell Canada, MITACS

2020 MSR-MILA Collaboration Grant (\$55,000, share 50%)

Lead PI: Xue (Steve) Liu; Industrial Mentor: Fernando Diaz

Title: [Two-sided Recommendation with Fairness](#)

Funding Body: Microsoft Research

Honors & Awards

2022 SIGIR Student Travel Grant. (\$1,350+\$850)

2021 Apple Scholars PhD Fellowship Nominee (1 out of 3 students at *McGill University*)

2020 Grad Excellence Award (\$12,600), *McGill University*

2019 Excellent Graduation Thesis, *Northeastern University*

2016-2019 Outstanding Student (\$2,400), *Northeastern University*

2017 HUAWEI Scholarship (\$1,000), *Huawei Technologies Co., Ltd.*

2017 First Prize, *CUMCM (Contemporary Undergraduate Mathematical Contest in Modelling)*

2017 MCM/ICM Meritorious Winner, *COMAP (Consortium for Mathematics and Its Application)*

2016 Yao Tianshun Scholarship (\$1,000, 2 out of 250 students), *Northeastern University*

2014 First Prize (rank 18th in Sichuan Province), *CMS (Chinese Mathematical Association)*

Professional Service

○ Session Chair

- SIGIR 2022 (Session: Collaborative Filtering)

○ Reviewer

- AAAI 2022
- SIGIR 2022
- TKDD 2022

Talk, Teaching & Mentorship

○ Giving Guest Lecture or Teaching

- **Teach:** *"Applications of Machine Learning in Real World Systems"* (COMP 597 & 598).
Head: Xue (Steve) Liu. McGill University. Winter 2021 & 2022.
- **Talk:** *"Multi-FR: A Multi-Objective Optimization Method for Achieving Two-sided Fairness in E-commerce Recommendation"*, Microsoft Bing.
Head: [Nick Craswell](#). Oct. 2021.
- **Talk:** *"Joint Multisided Exposure Fairness for Search and Recommendation"*.
Microsoft Bing. Apr. 2022.; Bell Canada. Aug. 2022.

○ Mentored / Collaborated with several undergraduate and junior graduate students. (2022-)

- Hillary Tao (McGill)
- Yansen Zhang (CityU of Hong Kong)
- Rui Song (McGill)
- Evelyn Cao (McGill)

Coding Skills

I am proficient in **Python** and **Pytorch**, also familiar with **Tensorflow**.

Life Skills

- I am a certificated **clarinet player**. I was a member of Musicians Association of Sichuan, China. My advisor was Yi Zhu, who is now a Deputy Director of the Music Department of Sichuan University.
- I am also a master in **Chinese Calligraphy**. My advisor was Jialin Zheng, who is now a Vice Chairman of Sichuan Calligraphers Association and Vice Chairman of Chengdu Calligraphers Association.

References

- Xue (Steve) Liu
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- Fernando Diaz
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- Bhaskar Mitra
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