

Shirin Seyedsalehi

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Work and Research Experience

- **Assistant Professor at Toronto Metropolitan University** Toronto, Canada, 2025-Present
 - Assistant Professor in the Department of Information Technology Management at the Ted Rogers School of Management. Current responsibilities include teaching undergraduate courses in Business Intelligence, and programming, as well as supervising student research projects.
- **Research Scientist Intern at Microsoft Research** Toronto, Canada, 2022
 - Interned as a research scientist on the IGLU (Interactive Grounded Language Understanding in a Collaborative Environment) project under the mentor-ship of Julia Kiselava.
- **Researcher at University of Toronto (LS3 Lab)** Toronto, Canada, 2021-2025
 - Conducted research on reducing stereotypical gender biases in neural ranker information retrieval models (Publications in: SIGIR, CIKM, ECIR, EDBT, and ACML).
- **Intern at NSERC Responsible AI** Toronto, Canada, 2021-2025
 - Organized and participated in seminars, talks, and panels on Fairness, Accountability, Transparency, and Ethics in AI and ML with a transdisciplinary perspective.
- **Research Scientist at PARTDP AI** Tehran, Iran, 2020-2021
 - Developed and conducted research on various NLP projects, including training large language models, text summarization, sentiment analysis, and text emotion analysis.

Education

- **PhD.: Toronto Metropolitan University - Department of Electrical, and Computer Engineering**
 - Total GPA: 4.08/4.33 Toronto, Canada
 - Thesis: Mitigating Gender Biases in Information Retrieval Systems 2021-2025
- **M.Sc.: Amirkabir University of Technology - Department of Electrical Engineering**
 - Total GPA: 16.22/20 (3.44/4) Tehran, Iran
 - Thesis: Generative Adversarial Networks for Propagation Channel Modeling, 2016-2019
- **B.Sc.: Amirkabir University of Technology - Department of Electrical Engineering**
 - GPA: 17.81/20 (3.8/4) Tehran, Iran
 - Thesis: Epileptic Seizure Detection from EEG Signals with machine learning techniques, 2012-2016

Publications

Journal Papers

- A Regularization Framework for Bias Mitigation in Dense Neural Rankers, Shirin Seyedsalehi, Morteza Zihayat, Ebrahim Bagheri, **Machine Learning Journal (Impact Factor: 4.3)**, 2025.
- Query Performance Prediction Using Neural Query Space Proximity, Amin Bigdeli, Sajad Ebrahimi, Negar Arabzadeh, Sara Salamat, Shirin Seyedsalehi, Maryam Khodabakhsh, Fattaneh Zarinkalam, and Ebrahim Bagheri, **ACM Transactions on Intelligent Systems and Technology (Impact Factor: 6.6)**, 2025.
- Understanding and Mitigating Gender Bias in Information Retrieval Systems, Shirin Seyedsalehi, Amin Bigdeli, Negar Arabzadeh, Batool AlMou-sawi, Zack Marshall, Morteza Zihayat and Ebrahim Bagheri, **Foundations and Trends® in Information Retrieval (Impact Factor: 10.4)**, 2024.

- Gender Disentangled Representation Learning in Neural Rankers, Shirin Seyedsalehi, Sara Salamat, Negar Arabzadeh, Sajad Ebrahimi, Morteza Zihayat and Ebrahim Bagheri, **Machine Learning Journal (Impact Factor: 4.3)**, 2024.
- A Contrastive Neural Disentanglement Approach for Query Performance Prediction, Sara Salamat, Negar arabzadeh, Shirin seyedsalehi, amin bigdeli, Morteza Zihayat, Ebrahim Bagheri, **Machine Learning Journal (Impact Factor: 4.3)**, 2024.
- Generative Adversarial Networks for Propagation Channel Modeling, Shirin Seyedsalehi, Vahid Pourahmadi, Hamid Sheikhzadeh, Ali Hossein Gharari, **AUT Journal of Modeling and Simulation**, 2022.

Conference Papers

- Bias-aware Curriculum Sampling for Fair Ranking, Shirin Seyedsalehi, Hai son Le, Morteza Zihayat and Ebrahim Bagheri, *The 48TH International ACM SIGIR Conference on Research and Development in Information Retrieval; SIGIR2025 (Core Rank: A*)*.
- Reinforcement Learning for Effective Few-Shot Ranking, Shiva Soleimani, Sajad ebrahimi, Shirin Seyedsalehi, Fattane Zarrinkalam, and Ebrahim Bagheri, *The 48TH International ACM SIGIR Conference on Research and Development in Information Retrieval; SIGIR2025 (Core Rank: A*)*.
- De-Biasing Relevance Judgements for Fair Ranking, Amin Bigdeli, Negar Arabzadeh, Shirin Seyedsalehi, Bhaskar Mitra, Morteza Zihayat and Ebrahim Bagheri, *45th European Conference on Information Retrieval; ECIR2023 (Core Rank: A)*.
- Neural Disentanglement of Query Difficulty and Semantics, Sara Salamt, Negar Arabzadeh, Shirin Seyedsalehi, Amin Bigdeli, Morteza Zihayat, ebrahim Bagheri, *32nd ACM International Conference on Information and Knowledge Management; CIKM2023 (Core Rank: A)*
- Don't Raise Your Voice, Improve Your Argument: Learning to Retrieve Convincing Arguments, Sara Salamat, Negar Arabzadeh, Amin Bigdeli, Shirin Seyedsalehi, Morteza Zihayat and Ebrahim Bagheri, *45th European Conference on Information Retrieval; ECIR2023 (Core Rank: A)*.
- Addressing Gender-related Performance Disparities in Neural Rankers, Shirin Seyedsalehi, Amin Bigdeli, Negar Arabzadeh, Morteza Zihayat, Ebrahim Bagheri, *The 45th International ACM SIGIR Conference on Research and Development in Information Retrieval; SIGIR 2022 (Core Rank: A*)*.
- Bias-aware Fair Neural Ranking for Addressing Stereotypical Gender Biases, Shirin Seyedsalehi, Amin Bigdeli, Negar Arabzadeh, Bhaskar Mitra, Morteza Zihayat, Ebrahim Bagheri, *25th International Conference on Extending Database Technology; EDBT2022 (Core Rank: A)*.
- A Neural Approach to Forming Coherent Teams in Collaboration Networks, Shirin Seyedsalehi, Radin Hamidi Rad, Mehdi Kargar, Morteza Zihayat, Ebrahim Bagheri, *25th International Conference on Extending Database Technology; EDBT2022 (Core Rank: A)*.
- Matches Made in Heaven: Toolkit and Large-Scale Datasets for Supervised Query Reformulation, Negar Arabzadeh, Amin Bigdeli, Shirin Seyedsalehi, Morteza Zihayat, Ebrahim Bagheri, *30th ACM International Conference on Information & Knowledge Management; CIKM2021 (Core Rank: A)*.
- On the Orthogonality of Bias and Utility in Ad hoc Retrieval, Amin Bigdeli, Negar Arabzadeh, Shirin Seyedsalehi, Morteza Zihayat and Ebrahim Bagheri, *The 44th International ACM SIGIR Conference on Research and Development in Information Retrieval; (SIGIR2021 (Core Rank: A*)*.
- A Light-weight Strategy for Restraining GenderBiases in Neural Rankers, Amin Bigdeli, Negar Arabzadeh, Shirin Seyedsalehi, Morteza Zihayat and Ebrahim Bagheri, *44th European Conference on Information Retrieval; ECIR2022 (Core Rank: A)*

In Progress/Under Review Papers:

- Self-Paced Fair Ranking with Loss as a Proxy for Bias, Shirin Seyedsalehi, Hai son Le, Morteza Zihayat and Ebrahim Bagheri, *34th ACM International Conference on Information and Knowledge Management; WSDM2025 (Core Rank: A)*.

Research Projects with Private Sector

- Research Scientist, **Microsoft Research**– IGLU Project: Contributed to the development of a state-of-the-art multi-modal model capable of predicting next-step actions in interactive environments. The model leverages image and text data from previous states to generate precise text-based action predictions, enhancing decision-making capabilities in complex scenarios.
- Research Scientist, Addressing Gender Bias in Neural Ranking Systems, **Microsoft Research**: Developed and implemented advanced loss function regularization techniques to mitigate stereotypical gender biases in neural rankers. The work ensures fair and unbiased retrieval outcomes in search systems, promoting ethical AI practices in information retrieval.
- NLP Research Scientist, **Partdp.ai**: Conducted advanced text analytics, including automated text summarization, emotion detection, and market trend prediction. Leveraged NLP techniques to extract actionable insights from large-scale textual datasets, driving data-informed strategic decisions.

Teaching Experience

- **Instructor at Toronto Metropolitan University:**
 - **ITM618: Business Intelligence, and Analytics**, 2025 -Present
 - **ITM200: Fundamentals of Programming**, Ted Rogers School of Management. 2025 -Present
- **Guest Lecturer at Toronto Metropolitan University:**
 - **ITM740 - Artificial Intelligence in Business**. Ted Rogers School of Management. Winter 2025
- **Tutorials**
 - Understanding and Mitigating Gender Bias in Information Retrieval Systems, Amin Bigdeli, Negar Arabzadeh, Shirin Seyedsalehi, Morteza Zihayat and Ebrahim Bagheri, *45th European Conference on Information Retrieval (ECIR2023)*.
 - Gender Fairness in Information Retrieval Systems, Amin Bigdeli, Negar Arabzadeh, Shirin Seyedsalehi, Morteza Zihayat and Ebrahim Bagheri, *The 45th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2022)*.
- **Teaching Assistance:** 2019 -Present
 - **Toronto Metropolitan University**
 - **EES 512: Electric Circuits**, Department of Electrical, and Computer Engineering, 2022, 2023, 2024
 - **COE 848: Fundamentals of Data Engineering**, Department of Electrical, and Computer Engineering, 2023
 - **ITM 500: Data and Information Management**, Ted Rogers School of Management, 2023
 - **ELE 888: Intelligent Systems**, Department of Electrical, and Computer Engineering, 2022
 - **COE 758: Digital Systems Engineering**, Department of Electrical, and Computer Engineering. 2021
 - **Amirkabir University of Technology**
 - **Statistics and probability**, Department of Electrical Engineering, 2017–2019.

Advised Students

- Hai Son Le, Mitigating Gender Bias In Information Retrieval Systems. 2024-present
- Shiva Soleimani, Low-Resource Ranking With Reinforcement Learning. 2023-present
- Nika Mani, Comprehensive Analysis and Visualization of Canada's Research Funding Landscape using Data Analytics. Fall 2024
- Heather Leung, Exploration and Graphical Representation of Research Funding Trends in Canada Through Advanced Data Analysis Techniques. Summer 2023

Service to the Community

- Reviewer, Information Processing & Management Journal(IP&M) 2025
- Program Committee member, WSDM 2025 2025
- External Reviewer, ECIR 2025 2025
- Program Committee member, SIGIR 2025 2025
- External Reviewer, ECIR 2025 2025
- Program Committee member for short research paper track, SIGIR 2024 2024
- Program Committee member, SIGIR-AP 2024 2024
- Program Committee member for short, and long paper tracks, CIKM 2024 2024
- External Reviewer, ECIR 2024 2024
- Program Committee member for full, and short paper tracks, SIGIR 2023 2023
- External Reviewer, CIKM 2023 2023
- External Reviewer, RecSys 2023 2023
- External Reviewer, CanAI 2023 2023

Funds, Honors, and Awards

- Toronto Metropolitan University Graduate Scholarship. 2021-2025
- Toronto Metropolitan University International Tuition Scholarship. 2021-2025
- Nominated for Outstanding Ph.D. Dissertation Award, Toronto Metropolitan University. 2025
- Winner of Best Short Paper Award, ECIR 2022. 2022
- Direct Admission to the Master's Program, Electrical Engineering, Amirkabir University of Technology. 2017
- Direct Admission to the Master's Program, Biomedical Engineering, Amirkabir University of Technology. 2017
- Ranked among top 1% of participants in the Nationwide University Entrance Exams. 2012

Invited Talks

- Understanding and Mitigating Gender Bias in Information Retrieval Systems,
Department of Computer Science and Software Engineering (CSSE), Concordia University Fall 2024
- Understanding and Mitigating Gender Bias in Information Retrieval Systems,
EECS Seminar Series, York University Fall 2024
- Gender Disentangled Representation Learning in Neural Rankers
CSE Seminar Series, McMaster University Fall 2024
- Gender Biases in Neural Rankers
Microsoft Research Fall 2022
- Stereotypical Gender Biases
Information Retrieval Systems, Information Retrieval group of Radboud University. December 2021