Shirin Seyedsalehi

Assistant Professor at Toronto Metropolitan University
Ted Rogers School of Management

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 LinkedIn
 Google Scholar

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 Laboratory for Systems, Software and Semantics** Toronto, Canada, 2021-Present
 - 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 transdiciplinary 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–Present

○ **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

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)***.

■■■■■ Publications

Journal Papers

Accepted Papers:

○ 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)**, accepted and to appear, 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)**, *accepted and to appear, 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)**, *accepted and to appear, 2024.*

○ Generative Adversarial Networks for Propagation Channel Modeling, Shirin Seyedsalehi, Vahid Pourahmadi, Hamid Sheikhzadeh, Ali Hossein Gharari, *AUT Journal of Modeling and Simulation, 2022.*

In Progress/Under Review Papers:

○ A Generalizable Framework for Bias Mitigation in Dense Neural Rankers, Shirin Seyedsalehi, Morteza Zihayat, Ebrahim Bagheri, **Transactions on Intelligent Systems and Technology (Impact Factor: 7.2)**, *Submitted, 2024.*

○ 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;* **CIKM2025 (Core Rank: A)**

○ Refairmulate: A Benchmark Dataset for Gender-Fair Query Reformulations, Hai son Le, Shirin Seyedsalehi, Morteza Zihayat and Ebrahim Bagheri, *34th ACM International Conference on Information and Knowledge Management;* **CIKM2025 (Core Rank: A)**

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)***

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

- **Toronto Metropolitan University, and Amirkabir University of Technology:**   2019 -Present
  - **EES 512: Electric Circuits**, Department of Electrical, Computer, and Biomedical Engineering, Toronto Metropolitan University. conducted tutorial sessions, as well as laboratory sessions for three sections, over 10 Students in each section. Responsibilities for the tutorial sessions include teaching, and reviewing the key points of the week lecture, solving example problems, and marking weekly assignments. In addition, for the lab sessions I had to teach the students to connect circuits, and do the measurements.
    Course Instructor: Dr. Surinder Jassar   Fall 2022, 2023, and 2024

  - **COE 848: Fundamentals of Data Engineering**, Department of Electrical, Computer, and Biomedical Engineering, Toronto Metropolitan University. Conducted tutorial sessions for two sections, over 25 Students in each section. Responsibilities include teaching, and reviewing the key points of the week lecture, solving example problems, and marking weekly assignments.
    Course Instructor: Dr. Faeze Ensasn   Winter 2023

  - **ITM 500: Data and Information Management**, Ted Rogers School of Management, Toronto Metropolitan University. Two sections, over 15 Students in each section. Responsibilities include teaching SQL, solving example problems, answering student questions regarding the week lecture, and marking weekly assignments.
    Course Instructor: Dr. Mehdi Kargar   Winter 2023

  - **ELE 888: Intelligent Systems**, Department of Electrical, Computer, and Biomedical Engineering, Toronto Metropolitan University. Conducted tutorial sessions for two sections, over 25 Students in each section. Responsibilities include teaching, and solving example problems, and marking weekly assignments.
    Course Instructor: Dr. Lei Gao   Winter 2022

  - **COE 758: Digital Systems Engineering**, Department of Electrical, Computer, and Biomedical Engineering, Toronto Metropolitan University. Conducted tutorial sessions for two sections, over 25 Students in each section. Responsibilities include teaching, and reviewing the key points of the week lecture, solving example problems, and marking weekly assignments.
    Course Instructor: Dr. Lev Kirischian & Dr. Vadim Geurkov   Fall 2021

- **Statistics and probability**, Department of Electrical Engineering, Amirkabir University of Technology. Conducted tutorial sessions for two sections, over 30 Students in each section. Responsibilities include teaching, and reviewing the key points of the week lecture, designing problems to be solved in the class, designing and marking quizzes for each week.
Course Instructor: Tahere Seyedena

<div align="right">2017–2019</div>

Service to the Community

- Program Committee member, SIGIR 20245   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

Advised Students

- Hai Son Le, Mitigating Gender Bias In Information Retrieval Systems Using Curriculum Learning Strategies, 2024-now.

- Shiva Soleimani, Low-Resource Ranking With Reinforcement Learning, 2023-now.

- 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, 2023.

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.