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Radin Hamidi Rad

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Research Interests

My research lies in the fields of **Information Retrieval, Graph Processing Methods**, and **Responsible AI**. Specific interests include:

- Deep Learning
- Explainable AI
- Semantic Search
- Big Data Analytics
- Natural Language Processing
- Social Network Analysis

Education

Ph.D. of Electrical & Computer Engineering **2019 - 2024**
Toronto Metropolitan University
Thesis: Neural Architectures for Searching Subgraph Structures.
Supervisors: Dr. Ebrahim Bagheri, Dr. Mehdi Kargar & Dr. Jarek Szlichta

Computer Engineering **2017 - 2019**
Amirkabir University of Technology
Thesis: Multi-Layer Graph-Based Recommender Systems.
Supervisor: Dr. Maryam Amir Haeri

Electrical Engineering **2012 - 2016**
Amirkabir University of Technology
Thesis: Synchronizing Robot Arm With Human Arm Moves Using KINECT.
Supervisor: Dr. Saeed Sharifian

Working Experience

University of Toronto **January 2025 - present**
Postdoctoral Fellow and Sessional Lecturer *Toronto, ON*
Researching on Adversarial Information Retrieval. Teaching graduate courses, designing innovative course materials, and mentoring students to bridge theory and practice in modern information systems.

Microsoft Research **Jun 2022 - Aug 2022**
A.I. Research Intern *Redmond, WA*
Developing A.I. Models for Question Tagging and Routing in Community Question Answering Frameworks.
Mentors: Dr. Silviu Cucerzan, Nirupama Chandrasekaran

Vector Institute **Jan 2022 - Apr 2022**
Applied Machine Learning Intern *Toronto, ON*
Developing Language Models for Conversational Question Answering Platforms.
Mentor: Dr. Elham Dolatabadi

Selected Awards and Honors

- Canadian Artificial Intelligence Safety Institute (CAISI) Grant. ($100K) 2025 - 2026
- Toronto Metropolitan University Graduate Scholarship. ($30K) 2019 - 2024
- Queen Elizabeth II Graduate Scholarship in Science & Technology. ($15K) 2022 - 2023
- Toronto Metropolitan University Graduate Fellowship. ($8K) 2021 - 2022
- Toronto Metropolitan University Graduate Development Award. ($12K) 2019 - 2023
- Mitacs Research Training Award. ($6K) 2020 - 2021
- Toronto Metropolitan University International Student Scholarship. ($7K) 2020 - 2021
- Toronto Metropolitan University FEAS Graduate Funding Award. ($6K) 2019 - 2021

- Ranked Top-10 among graduate students during M.Sc. in Computer Engineering Department. 2017 - 2019
- Ranked 2nd in NADCO National Robotic Contest. 2009 - 2010

Selected Papers

Journal Papers:

J_1 **Robust Neural Model for Searching over Graphs with Missing Values** Radin Hamidi Rad, Ebrahim Bagheri, Mehdi Kargar, Divesh Srivastava and Jaroslaw Szlichta. (2024). *ACM Transactions on Intelligent Systems and Technology (**TIST**)*, (Impact Factor: 7.2)

J_2 **A Variational Neural Architecture for Skill-based Team Formation** Radin Hamidi Rad, Hossein Fani, Ebrahim Bagheri, Mehdi Kargar, Divesh Srivastava and Jaroslaw Szlichta (2024). *ACM Transactions on Information Systems (**TOIS**)*, *42*(1), 1-28. (Impact Factor: 5.6)

J_3 **Robust Query Performance Prediction for Dense Retrievers via Adaptive Disturbance Generation** Abbas Saleminezhad, Negar Arabzadeh, Radin Hamidi Rad, Soosan Beheshti and Ebrahim Bagheri. (2024). *Machine Learning Journal (**MLJ**)*, *114*(3), 1-23. (Impact Factor: 4.3)

J_4 **Learning Heterogeneous Subgraph Representations for Team Discovery** Radin Hamidi Rad, Hoang Nguyen, Feras Al-Obeidat, Ebrahim Bagheri, Mehdi Kargar, Divesh Srivastava, Jaroslaw Szlichta and Fattane Zarrinkalam. (2023). *Information Retrieval Journal (**IRJ**)*, *26*(1), 8. (Impact Factor: 2.5)

J_5 **DyHNet: Learning Dynamic Heterogeneous Network Representations** Hoang Nguyen, Radin Hamidi Rad, Fattane Zarrinkalam and Ebrahim Bagheri. (2023). *Information Sciences Journal (**ISJ**)*, *646*, 119371. (Impact Factor: 8.1)

Conference Papers:

C_1 **ROKSANA: An Open-Source Toolkit for Robust Graph-Based Keyword Search** Radin Hamidi Rad, Amir Khosrojerdi and Ebrahim Bagheri. *48th International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR2025**)*.

C_2 **Retrieval-Augmented Neural Team Formation** Mohammad Dara, Radin Hamidi Rad, Fattane Zarrinkalam and Ebrahim Bagheri. *47th European Conference on Information Retrieval (**ECIR2025**)*. (acceptance rate: **25.6%**)

C_3 **Interactive Topic Tagging in Community Question Answering Platforms** Radin Hamidi Rad, Silviu Cucerzan, Nirupama Chandrasekaran and Michael Gamon. *46th European Conference on Information Retrieval (**ECIR2024**)*, (pp.195-209). (acceptance rate: **23.0%**)

C_4 **Noisy Perturbations for Estimating Query Difficulty in Dense Retrievers** Negar Arabzadeh, Radin Hamidi Rad, Maryam Khodabakhsh and Ebrahim Bagheri. *32nd ACM International Conference on Information and Knowledge Management (**CIKM2023**)*, (pp. 3722-3727). (acceptance rate: **24.0%**)

C_5 **Quantifying Ranker Coverage of Different Query Subspaces** Negar Arabzadeh, Amin Bigdeli, Radin Hamidi Rad and Ebrahim Bagheri. *The 46th International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR2023**)*, (pp. 2298-2302).

C_6 **PyDHNet: A Python Library for Dynamic Heterogeneous Network Representation Learning and Evaluation** Hoang Nguyen, Radin Hamidi Rad, Ebrahim Bagheri. *31st ACM International Conference on Information & Knowledge Management (**CIKM2022**)*, (pp. 4936-4940). (acceptance rate: **21.0%**)

C_7 **Subgraph Representation Learning for Team Mining** Radin Hamidi Rad, Ebrahim Bagheri, Mehdi Kargar, Divesh Srivastava, Jaroslaw Szlichta. *14th ACM Web Science Conference (**WebSci2022**)*, (pp. 148-153).

C_8 **A Neural Approach to Forming Coherent Teams in Collaboration Networks** Radin Hamidi Rad, Shirin SeyedSalehi, Mehdi Kargar, Morteza Zihayat, Ebrahim Bagheri *The 25th International Conference on Extending Database Technology (**EDBT2022**)*, (pp. 440-444). (acceptance rate: **18.0%**)

C_9 **Retrieving Skill-Based Teams from Collaboration Networks** Radin Hamidi Rad, Ebrahim Bagheri, Mehdi Kargar, Divesh Srivastava and Jaroslaw Szlichta
*The 44th International ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR2021**)*, (pp. 2015-2019). (acceptance rate: **21.0%**)

C_{10} **PyTFL: A Python-based Neural Team Formation Toolkit** Radin Hamidi Rad, Aabid Mitha, Hossein Fani, Mehdi Kargar, Jaroslaw Szlichta and Ebrahim Bagheri *30th ACM International Conference on Information & Knowledge Management (**CIKM2021**)*, (pp. 4716-4720). (acceptance rate: **21.7%**)

C_{11} **Learning to Form Skill-based Teams of Experts** Radin Hamidi Rad, Hossein Fani, Mehdi Kargar, Jarek Szlichta, Ebrahim Bagheri. *Proceedings of the 29th ACM International Conference on Information & Knowledge Management (**CIKM2020**)*, (pp. 2049-2052). (acceptance rate: **21.0%**)

C_{12} **Hybrid Forest: A Concept Drift Aware Data Stream Mining Algorithm** Radin Hamidi Rad, Maryam Amir Haeri. *arXiv preprint arXiv:1902.03609.*

Teaching Experience

- INF2204H - Digital Connectivity for Information Systems: Foundation, Innovation and Challenges, Sessional Lecturer, Faculty of Information, University of Toronto — Winter 2025
- ITM-618 - Business Intelligence and Analytics, Teaching Assistant, Ted Rogers School Of Management, Toronto Metropolitan University (TMU), Dr. Mehdi Kargar — Fall 2023
- COE-628 - Operating Systems, Teaching Assistant, Department of Electrical & Computer Engineering, TMU, Dr. Rasha Kashef — Winter 2023
- ITM-500 - Data and Information Management, Teaching Assistant, Ted Rogers School Of Management, TMU, Dr. Mehdi Kargar — Winter 2023
- ITM-618 - Business Intelligence and Analytics, Teaching Assistant, Ted Rogers School Of Management, Toronto Metropolitan University (TMU), Dr. Mehdi Kargar — Fall 2022
- COE-628 - Operating Systems, Teaching Assistant, Department of Electrical & Computer Engineering, TMU, Dr. Rasha Kashef — Winter 2022

***** There are **18** other teaching assistant roles that are not listed here to save space. Please visit my webpage to see the full list of courses.

Projects

Data Observatory **2024 - 2025**

A government-funded initiative designed to empower social science researchers in Canada. This project seeks to establish a comprehensive framework for systematic data collection and processing, leveraging state-of-the-art AI techniques. The platform boasts advanced data collection features and powerful text analysis capabilities, generating valuable insights through innovative, generative AI methods to drive effective solutions for complex social challenges.

- Collaborators: Bridging Divides Program, University of Alberta
- Output: "Data Observatory Platform: A group of AI-powered tools developed for Social Scientists".

WISEST (WhIch Systematic Evidence Synthesis is besT) **2023 - 2025**

Led the AI development for an interdisciplinary project aimed at conducting quality assessments of systematic reviews. Led the development of an advanced Generative AI model capable of performing comprehensive analyses of systematic review research papers, providing robust explanations to ensure reliability and transparency throughout the assessment process.

- Collaborators: Knowledge Translation Program, Unity Health Network, St. Michael's Hospital, University of British Columbia, University of Toronto
- Output: WISEST Web Tool, WISEST Dataset Challenge, WISEST Annotation Platform

Heterogeneous Graph Representation Learning **2022 - 2024**

This project focuses on developing new neural-based models for heterogeneous graph representation learning. The proposed neural architectures are designed to perform downstream tasks on dynamic heterogeneous graphs, such as keyword search and subgraph mining.

- Collaborators: AT&T Chief Data Office, York University
- Output: Multiple publications: J_1, J_4, J_5, C_1, C_6.

Team Formation **2019 - 2022**

The Team Formation problem is a practical application of the Graph Search problem that addresses significant challenges. This project focuses on assembling teams of experts from a collaborative network to cover a specified skill set while ensuring other factors such as high productivity, effective communication, and other essential attributes. This complexity renders Team Formation a challenging instance of keyword search in a graph, requiring multiple criteria to identify the target subgraph. We have developed several novel graph neural network architectures that outperform current state-of-the-art methodologies.

- Collaborators: AT&T Chief Data Office, York University
- Output: Multiple publications: J_2, C_2, C_7, C_8, C_9, C_{10}, C_{11}.

***Please visit my webpage to see the full list of projects.**

Community Services

- **PC Member** for SIGIR 2025: 48th International ACM SIGIR Conference on Research and Development in Information Retrieval
- **PC Member** for WebSci 2025: 17th ACM Web Science Conference 2024
- **PC Member** for RecSys 2024: 18th ACM Conference on Recommender Systems
- **PC Member** for WebSci 2024: 16th ACM Web Science Conference 2024
- **Reviewer** for CIKM 2023: 32nd ACM International Conference on Information and Knowledge Management
- **PC Member** for WebSci 2023: 15th ACM Web Science Conference 2023
- **Reviewer** for AAAI 2023: 37th AAAI Conference on Artificial Intelligence
- **Reviewer** for SIGIR 2022: 45th International ACM SIGIR Conference on Research and Development in Information Retrieval
- **Reviewer** for CIKM 2022: 31st ACM International Conference on Information and Knowledge Management
- **Reviewer** for ECIR 2022: 44th European Conference on Information Retrieval
- **Reviewer** for TheWebConf 2022: The Web Conference 2022
- **PC Member** for WebSci 2022: 14th ACM Web Science Conference 2022
- **Reviewer** for CanadianAI 2022: 35th Canadian Conference on Artificial Intelligence
- **Reviewer** for CASCONxEVOKE 2022: Advanced studies in computer science and software engineering sponsored by the IBM Canada Laboratory
- **Reviewer** for CanadianAI 2021: 34th Canadian Conference on Artificial Intelligence
- **Reviewer** for CASCONxEVOKE 2021: Advanced studies in computer science and software engineering sponsored by the IBM Canada Laboratory
- **Reviewer** for CanadianAI 2020: 33rd Canadian Conference on Artificial Intelligence
- **Reviewer** for MAISoN 2020 (Special Edition): 6th International Workshop on Mining Actionable Insights from Social Networks
- **Reviewer** for CanadianAI 2022: 33th Canadian Conference on Artificial Intelligence
- **Research Assistant** in Canada NSERC CREATE Responsible A.I. Program. 2021-2023
- **Lead GPU Cloud Infrastructure Architect.** 2019-present
  Leading the deployment and configuration of a high-performance computing cluster featuring over 1,000 CPU cores and 25+ GPU units. Ensured optimal utilization of computing resources to support advanced research initiatives, facilitating interdisciplinary collaboration on machine learning and data-intensive applications.

References

Available Upon Request