Bahare Fatemi

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Education

- **Ph.D. in Computer Science**, University of British Columbia, 2017 - 2022 (expected),
  Research Area: Machine Learning, Relational Reasoning, Graph Representation Learning.
  Supervisor: Prof. David Poole.
- **M.Sc. in Computer Science**, University of British Columbia, 2015 - 2017, **GPA: 90.8/100**,
  Research Area: Machine Learning, NLP, Information Retrieval. (Link to thesis).
  Supervisor: Prof. David Poole.
- **B.Sc. in Software Engineering**, Amirkabir University of Technology, 2011 - 2015, **GPA: 18.46/20**,
  Thesis: Efficient elimination ordering for inference in probabilistic graphical models.
  Supervisor: Prof. Shahram Khadivi.

Work Experience

- **Research Intern** at **Google Research**: Dec 2021 - March 2022, Research on multi-hop reasoning for open-domains , **Supervisor:** Deepak Ramachandran.
- **Research Intern** at **Facebook AI Research**: June 2021 - November 2021, Research on knowledge-based recommender systems, **Supervisor:** Adriana Romero-Soriano.
- **Research Intern** at **Borealis AI**: June 2020 - October 2020, Research on structure learning for Graph Neural Networks, **Supervisors:** Layla El Asri and Seyed Mehran Kazemi.
- **Research Intern** at **Element AI**: November 2018 - May 2020, Research on representation learning for knowledge (hyper)graphs, **Supervisors:** David Vaźquez Bermúdez and Perouz Taslakian.
- **Machine Learning Contractor** at **TELUS**: July 2016 - September 2017, Designed a probabilistic entity-resolution model for searching TELUS billing accounts. Our model improved TELUS's existing search tools (costing hundreds of thousand dollars per year) by 12%, **Supervisor:** Mike Tyndall.
- **Software Developer** at **SOHATO**: February 2015 - August 2015, Back-end developer for a large national project in Iran, **Supervisor:** Amir Rasekh.
- **Software Engineer Intern** at **TCI Khorasan Razavi**: May 2014 - August 2014, Design and implementation of an automated data management system, **Supervisor:** Davood Zohoorian.

Publications

- **Fatemi, B.**, Duval, Q., Girdhar, R., Drozdzal, M., and Romero-Soriano, A. "Learning to Substitute Ingredients in Recipes", Under review.
- **Fatemi, B.**, Taslakian, P., Vaźquez D., and Poole, D. "Knowledge Hypergraph Embedding Meets Relational Algebra", Under review, (link).
- **Fatemi, B.**, El Asri, L., and Kazemi, S.M. "SLAPS: Self-Supervision Improves Structure Learning for Graph Neural Networks", NeurIPS 2021, (link).
- **Fatemi, B.**, Taslakian, P., Vaźquez D., and Poole, D. "Knowledge Hypergraphs: Prediction Beyond Binary Relations", IJCAI 2020, (link).
- **Fatemi, B.**, Taslakian, P., Vaźquez D., and Poole, D. "Knowledge Hypergraphs: Extending Knowledge Graphs Beyond Binary Relations", ECML Workshop on KGRL New Trends, 2019.
- **Fatemi, B.**, Ravanbakhsh, S., Poole, D. "Improved Knowledge Graph Embedding using Background Taxnomic Information", AAAI 2019, (link).
- **Fatemi, B.**, Kazemi, S.M., Poole, D. "Record Linkage to Match Customer Names: A Probabilistic Approach", ICML Workshop on StarAI, July 2018, (link) .
- Ramanan, N., Kunapuli, G., Khot, T., **Fatemi, B.**, Kazemi, S. M., Poole, D., Kersting, K., Natarajan, S. "Structure Learning for Relational Logistic Regression: An Ensemble Approach", Knowledge Representation and Reasoning (KR-2018) (longer version link).

- Kazemi, S.M., **Fatemi, B.**, Kim A., Peng Z., Roy Tora M., Zeng X., Dirks M, Poole, D. "Comparing Aggregators for Relational Probabilistic Models", UAI Workshop on StarAI, August 2017, (link).
- **Fatemi, B.**, Kazemi, S.M., Poole, D. "A Learning Algorithm for Relational Logistic Regression: Preliminary Results", IJCAI Workshop on StarAI, July 2016, (link).

Teaching Assistance

- Artificial Intelligence, Algorithm Design, Computer Architecture, Data Structures

open-source software

- **SLAPS:** Structure learning for GNNs with self-supervision.
- **ReAlE:** Knowledge hypergraph completion with relational algebra generalization.
- **HypE:** Knowledge hypergraph completion with positional embedding.
- **SimplE:** A faster implementation of SimplE Embedding for Link Prediction in Knowledge Graphs.

Honors and Awards

- Awarded The **President's Academic Excellence Initiative PhD Award**, 2020, (link).
- Awarded The **Borealis AI**'s graduate fellowship, 2019, (link).
- Ranked top 5% in Google AI Open Images **Visual Relationship Track**, 2018.
- Awarded the **4-Year Fellowship** (UBC's Premier PhD Award), 26000 CAD per year, University of British Columbia, Vancouver, Canada, 2017 - 2021.
- Awarded the **Student Service Award**, University of British Columbia, Vancouver, Canada, 2017.
- Awarded the **UBC International Tuition Award**, 3200 CAD per year, University of British Columbia, Vancouver, Canada, 2015 - 2021.
- **Ranked 1st** in **Cumulative GPA** among all students in Software Engineering department, Amirkabir University of Technology.
- Awarded the **Best Student of the Year** title, Amirkabir University of Technology, 2013 - 2015.
- Ranked 11th in **19th National Olympiad in Computer Engineering**, Tehran, Iran, 2014.
- Ranked 22nd in International **Data Mining Cup (DMC)**, Berlin, Germany, 2014.

Technical Skills

- Python, PyTorch, TensorFlow, C/C++, Java, Ruby, MATLAB, JavaScript, HTML, SQL.

Organizational Activities

- **Montreal AI Symposium (MAIS) co-organizer:** October 2021, Montreal.
- **Women in Machine Learning (WiML) workshop co-organizer:** NeurIPS 2019, Vancouver.
- **StarAI reading group Organizer:** Computer Science Department, UBC, 2017 - 2018.
- **Comittee member,** at Focus of Women in CS: 2015 - 2019.
- **Program Facilitator,** at GIRLsmart4tech: 2017 - 2018.
- **Mentor,** at Girls Learning Code: 2017 - 2018.

Professional Service

- **Reviewer:** NeurIPS 2021, ICLR 2021, AAAI 2021, GRL 2020, Neurocomputing (Journal).

Talks

- Feb 2021, Knowledge Graphs and Beyond Binary Relations, Guest Lecturer at **UBC**, Vancouver.
- Dec 2020, Knowledge Hypergraphs: Prediction Beyond Binary Relations, **Facebook AI Research**, Montreal.
- June 2019, Extending Knowledge Graphs Beyond Binary Relations, **Element AI**, Montreal.