GEORGE SAAD

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Education

University of Toronto **Sep. 2023 – Jan. 2025**
MASc (Thesis-based), Research in LLMs & Recommendation supervised by Prof. Scott Sanner *GPA: 4.0 (out of 4.0)*

University of Toronto **Sep. 2019 – May 2023**
BASc in Engineering Science, Major in Machine Intelligence, Certificate in Engineering Business *GPA: 3.76 (out of 4.0)*

Experience

Amazon **New York City, NY**
Applied Scientist *Feb. 2025 – Present*
- Working with LLMs & Recommender Systems for Conversational Ad Experiences

University of Toronto **Toronto, ON**
Research Assistant *May 2023 – Jan. 2025*
- Working on integrating information retrieval and **LLMs** (such as **GPT-4**) with conversational recommender systems to improve the state-of-the-art in recommendation at Scott Sanner's Data Driven Decision Making (D3M) Lab

Teaching Assistant *Sep. 2021 – Dec. 2024*
- Teaching Assistant for: Introduction to Programming (ESC180) in Python, Algorithms & Data Structures (ESC190) in C, Data Science (MIE223), and Computer Fundamentals (APS105) in C

Amazon **Seattle, WA**
Applied Scientist Intern *Jun. 2024 – Sep. 2024*
- Developed a model to improve product search ranking by 29%, impacting over 8.5 million weekly queries on Amazon
- Implemented & tested production-ready code to allow the engineering team to integrate with Amazon's search engine
- Performed extensive prototyping, literature review, and evaluation to present to 50+ team members, including scientists

Vector Institute **Toronto, ON**
Applied Machine Learning Intern *Jan. 2023 – Sep. 2023*
- Evaluated causal inference estimators such as **TARNet** and **Dragonnet**, on data with no ground truth counterfactuals
- Led lectures & hands-on sessions on causal estimation & recommender systems for 200+ technical participants, including data scientists and executives from 40+ teams across major sponsors such as RBC, Deloitte, Shopify & Air Canada

Meta (Facebook) **Menlo Park, CA**
Software Engineer Intern *May 2022 – Jul. 2022*
- Designed **Thrift** service to add tracking to over 260 million external Instagram story and profile links per day
- Implemented client-side app detection feature which resulted in a 120% increase in ad impressions for Instagram users without linked Facebook accounts, resulting in a roll out to 100% of Instagram users
- Refactored key Instagram Ads endpoints in **Hack (PHP)** and **Python Django** to reduce runtime & memory overhead

Content Turbine **Mississauga, ON**
Software Development Freelancer *Dec. 2020 – Sep. 2021*
- Built NoSQL database & caching modules for Play!, Vert.x, & JHipster frameworks in **Java** using **Singleton** and **Dependency Injection (DI)** design patterns, with Guice and JUnit unit testing and ASCIIDOC documentation

Loblaw Digital **Toronto, ON**
Software Development Co-op *May 2021 – Aug. 2021*
- Researched & presented content targeting engine to the 40+ member PC Optimum team, increasing personalization
- Implemented multiple endpoints & metrics in **Spring Boot Java** with **GCP** with 200k+ data points collected per hour

Publications / Research

Elaborative Subtopic Query Reformulation for Broad and Indirect Queries in Travel Dest. Rec. | Paper
Q. Wen*, Y. Liu*, J. Zhang*, **G. Saad**, A. Korikov, Y. Sambale, S. Sanner - *ROEGEN @ RecSys 2024*

Multi-Aspect Reviewed-Item Retrieval via LLM Query Decomposition and Aspect Fusion | Paper
A. Korikov*, **G. Saad***, E. Baron, M. Khan, M. Shah, S. Sanner - *IR-RAG @ SIGIR'24*

Using Pre-Training to Speed Up Deep Reinforcement Learning | Paper
G. Saad - *University of Toronto Undergraduate Thesis, 2023*

* indicates equal contributions.

Technical Skills

Languages: Python, Java, JavaScript, C/C++, PHP/Hack, HTML/CSS, YAML, PostgreSQL, MATLAB
Technologies: PyTorch, JAX, Numpy, Pandas, Scikit Learn, Matplotlib, Spring Boot, React, Node, Flask, Django