George Saad

647-544-5877 g.saad@mail.utoronto.ca linkedin.com/in/gkysaad github.com/gkysaad georgesaad.tech

Education

University of Toronto **Starting Sept. 2023**
MASc, Research in Conversational Recommender Systems supervised by Prof. Scott Sanner

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

University of Toronto **Toronto, ON**
Research Assistant *May 2023 – Present*

- Working on integrating 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 – Present*

- Teaching Assistant for: Introduction to Programming (ESC180) in Python, Algorithms & Data Structures (ESC190) in C

Vector Institute **Toronto, ON**
Applied Machine Learning Intern *Jan. 2023 – Sep. 2023*

- Implemented metrics to evaluate the performance of causal inference estimators, including **TARNet** and **Dragonnet**, on synthetic datasets and observational 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 datastore and caching modules for the Akka Play! and Vert.x frameworks in **Java** using **Singleton** and **Dependency Injection (DI)** design patterns, and reactive programming, with Guice and JUnit unit testing
- Wrote ASCIIDOC documentation, created demo apps and wrote technical blog posts

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 tracking metrics in **Spring Boot Java** and **GCP** with 200k+ data points collected per hour
- Created multiple endpoints to reduce development and testing time by 60% for various parts of the PC Optimum product

Research / Projects

Pre-training to Speed Up Reinforcement Learning Thesis | Paper **Sep. 2022 - Apr. 2023**

- Researching methods to improve on the sample efficiency of reinforcement learning when using the A2C framework

DeepDixit | Paper | Demo | *PyTorch, CLIP, SIREN, BigGAN, Python Flask, React, SQL* **Jan. 2022 - Apr. 2022**

- Built an image caption guessing game using **SIREN** + **BigGAN** based networks to create an image generator with a **CLIP-based** scoring function to fine tune the model based on text prompts

GPT-3 for Finance | Github | *GPT-3, Python, Flask* **Jul. 2020**

- Fine-tuned **OpenAI's GPT-3** to fill a balance sheet using natural statements and created a **Flask** demo app
- Received 100,000 views, featured on InfoQ and on Y Combinator Hacker News

Open Source Contributions

JHipster Database Integration | Pull Request | *Java, Spring Boot, Spring Data, NoSQL* **May 2021 - Jul. 2021**

- Adding a popular NoSQL database service to JHipster, a project with over 20,000 stars and 156,000 monthly downloads

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