

# GEORGE SAAD

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## 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

### Vector Institute

Jan. 2023 – Present

Applied Machine Learning Intern

Toronto, ON

- 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

### University of Toronto

Sep. 2021 – Present

Teaching Assistant

Toronto, ON

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

### Meta (Facebook)

May 2022 – Jul. 2022

Software Engineer Intern

Menlo Park, CA

- 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

Dec. 2020 – Sep. 2021

Software Development Freelancer

Mississauga, ON

- 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

May 2021 – Aug. 2021

Software Development Co-op

Toronto, ON

- 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

### FoodTrain

May 2020 – Dec. 2020

Lead Software Engineer Intern

Sunnyvale, CA

- Led a team of 10 developers to build full-stack MVP using **React Native**, **Node.js**, and **MongoDB** in under 6 months

### Delovary

Mar. 2020 – Jun. 2020

Software Engineer Intern

Sunnyvale, CA

- Built a data science tool in **Python** to scrape and graph 900+ data points, reducing time for management by over 80%

## Research / Projects

### Pre-training to Speed Up Reinforcement Learning Thesis

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