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: 3.73 (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

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

Delovery — **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 - Present**
- 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