George Saad

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Education

University of Toronto   **Sep. 2019 – May 2023**
Bachelor of Applied Science in Engineering Science   *GPA: 3.77 (out of 4.0)*
Major in Machine Intelligence, Certificate in Engineering Business (Anticipated)

Experience

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 and ran controlled experiment on 4% of users to determine impact, which resulted in a 120% increase in ad impressions for Instagram users without linked Facebook accounts
- Performed major backend code improvement in **Hack (PHP)** and **Python Django** for the Instagram Ads endpoints

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*
- Led research into content targeting engine and presented to the 40+ member PC Optimum team to enable personalization of marketing tiles for consumers
- Set up latency log tracking in various functions in the **Spring Boot Java** backend and created **GCP** metrics and dashboards to extract and display the data, 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 (formerly OrangeTopi)   **May 2020 – Dec. 2020**
Lead Software Engineer Intern   *Sunnyvale, CA*
- Led a team of 8 – 10 developers in developing a full-stack MVP using **React Native** and **Node.js** in under 6 months by guiding the team and developing components, app notifications and authentication with the React Context API

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

micromalaria | Paper | *ResNet, Python Flask*   **Sep. 2021 - Dec. 2021**
- Fine-tuned a **ResNet** classifier to identify whether cell images were infected with malaria for an African health lab
- Achieved a 99% decrease in false positive rate from 19.4% to 0.16% and a 17.5% increase in accuracy from 80% to 94%

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 18,000 stars and 156,000 monthly downloads

Technical Skills

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