

# James Liang

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## EDUCATION

### McGill University

Bachelor of Science (BSc) in Honours Computer Science and Mathematics

Expected May 2026

GPA: 4.0

## WORK EXPERIENCE

### University of Montreal – LabTNS

August 2021 – Present

*Software Engineer Intern*

Montreal, QC

- Developed a **full-stack web application** using **Flask**, **React.js**, **JavaScript**, **Java**, **Spring Boot**, and **GraphDB** to retrieve more than **25k+ standardized clinical concepts under 500ms** while using **Agile Methodologies** [\[Website\]](#)
- Implemented a secure **Spring Boot backend API** using **Bearer authentication** and documented API using **Swagger**, enabling users to perform **authenticated API requests** in the browser and programmatically for **7+ endpoints**
- Maintained infrastructure of **Docker containers** with **Nginx** load balancing and **handled troubleshooting 3 servers for 2+ years**
- Aligned **4+ national drug databases** using **RegEx** and **NLP** to **OCRx's ontology**, resulting in **76k+ new entities**

### Boehringer Ingelheim

May 2021 – August 2021

*Machine Learning Engineer Intern*

Burlington, ON

- Preprocessed **15+ years of physician history** using **R (Tidyverse)** and **Python (Pandas)** to optimize email click-through-rates
- Engineered a data-driven solution using machine learning techniques such as **XGBoost**, **LDA**, and **SVM** to predict optimal email send time for physicians, achieving a **top 3 accuracy rate of 80% (2.6x improvement)**
- Identified **the top 10% of most valuable physicians** using recency frequency monetary (RFM) analysis

### Boehringer Ingelheim

May 2020 – August 2020

*Machine Learning Engineer Intern*

Burlington, ON

- Created an **RShiny** app to simplify complex **SQL** queries through a GUI to return **211k+ clinical trials in under 2 seconds**
- Improved Synthea, an open-source **synthetic patient generator**, by generating localized (Canadian) demographics data for **1854 hospitals and 967 counties** (using Statistics Canada open datasets) [\[Github\]](#)
- Streamlined software production with **Travis CI (continuous integration)** and **PyTest (unit testing)** for **100% code coverage**

## PROJECTS

[Inspiratiq](#) | *React.js, Gatsby, Material UI, GraphQL, Stripe, Netlify functions, JavaScript*

- Developed an end-to-end **serverless web application** serving **over 100+ customers** on Netlify for Inspiratiq's artwork
- Integrated payment within the website using **Stripe** Checkout Sessions through Netlify functions for **300+ orders**

[iNews](#) | *React.js, Scikit-Learn, Flask, BeautifulSoup, Keras, Python, JavaScript*

- Constructed a **React frontend** fake news detector by performing validation **against 30+ scraped articles from Google News**
- Performed stance detection on Google News article through a custom multi-channel convolutional neural network on **Word2Vec** embeddings to **achieve an 85% accuracy vs 82% from state-of-the-art**

## LEADERSHIP EXPERIENCE AND AWARDS

- Douglas Howes Award:** Received award for outstanding contributions to the quality of student life. Organized MariHacks 2023, Montreal's largest hackathon for CEGEP and high school students (**178 participants**) for the first time at Marianopolis, corresponding to a **40% increase in attendance**.
- STEM Leadership Award:** Awarded for outstanding leadership in STEM (**President of [AI Club](#), MariHacks, Math Club**). Taught weekly workshops on web development, data structures and algorithms, and machine learning for **35+ students**.
- IEEE Foundation Award:** Awarded **1<sup>st</sup> prize** for Best Mathematics and Computer Science Project and **2<sup>nd</sup> prize** for Best CEGEP project for [Cascadia](#) at the 2022 Quebec provincial science fair out of **151 projects**.

## TECHNICAL SKILLS

- Programming Languages:** Python, Javascript, Golang, Typescript, HTML, CSS, Bash, Java, SQL, R, C, C++
- Frontend:** React.js, Redux, Gatsby. **Backend:** Flask, Spring Boot, Node.js HTTP, Express, Amazon Web Services (AWS)
- Concepts:** Agile Methodologies, UI/UX, Object Oriented Programming, Continuous Integration, DevOps, Technical Documentation, Project Management, Test Driven Development, Information Systems, Relational Databases, System Design
- Machine Learning / Deep Learning Libraries:** Pytorch, Pandas, Keras, HuggingFace, Tensorflow, Scikit-Learn, NumPy