

# Muhammad Sohail

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## EDUCATION

### McGill University

September 2020 – Present

Bachelor of Science in Honours Computer Science | 4.0 / 4.0 cGPA

Montreal, Quebec

- Dean's List 2020-2022. Coursework in Computer Systems/Architecture, Functional Programming/Programming Paradigms, Software Design, Operating Systems, and Probability.

## EXPERIENCE

### Coveo

January 2023 – April 2023

Data Analytics Engineering Intern

Montreal, Quebec

- Joining Coveo's data engineering team in the winter

### Pattern Labs

May 2022 – August 2022

Software Engineering Intern

Toronto, Ontario

- Designed and implemented scalable and modular RESTful API services using **Docker**, **Node**, and **Express**, with a focus on test-driven development, future extensibility, and ease of adoption
- Set up robust metrics and dashboards for incident management in our production API using **Datadog**, capturing **100%** of erroneous processes
- Instrumented monitoring for our web application using **Datadog**. Set up trace propagation to associate user activity with API processes, allowing complete end-to-end observability
- Automated resource syncing with 3rd party APIs up to **90%** by developing asynchronous serverless applications using **AWS Lambda**, **Cloudwatch**, and **Terraform**
- Constructed ETL pipelines and data dashboards using **Fivetran**, **Looker**, **Snowflake**, and **dbt**, reducing manual calculations by **100%** and allowing further business intelligence insights
- Provided increased architectural security by creating an SSH tunnel using **Terraform** modules to provision AWS resources, allowing observable connections to our database in a VPC

## PROJECTS

### Wrappedify | Python, Django, D3.js, Redis, Celery, Heroku

December 2021

- Developed a full-stack data analysis solution with Spotify's Web API, built using **Python** and **Django**
- Ensured a user-friendly UX by using **AJAX**, **Celery**, and **Redis** to run asynchronous data analysis
- Produced interactive infographics to visualise users' listening statistics using **D3.js**

### Unix Shell, Thread Scheduling Library, FUSE File System | C, Docker, FUSE, pthreads

December 2022

- Wrote simple implementations of various OS services as a part of class projects. Used **FUSE** to create a mountable user-level file system and **pthreads** to build a user-level thread scheduler.

### Spotify Dashboard | Python, PostgreSQL, Tableau Desktop

July 2022

- Created a **Tableau** dashboard to provide key insights about listening behaviours by using **Python** to clean, filter, and insert listening data into a **PostgreSQL** database

### Thousand Words | TypeScript, React, Socket.io, Express, Docker, AWS

August 2022

- Built a full-stack application using **TypeScript React** and **Express**, allowing real-time photo sharing through **Socket.io's WebSocket** library, visualized over an interactive map generated using **GeoJSON** data
- Utilised **Docker** for development / deployment to **Heroku**
- Used **AWS S3** for content storage and delivery, increasing image load times by **50%**

### NES Emulator | Rust, SDL

Ongoing

- Wrote an emulator to become familiar with lower level programming and patterns
- Implemented various hardware components including the CPU, memory, buses, PPU, and APU to support simple first-gen NES games

## TECHNICAL SKILLS

**Languages:** Python, Java, C, SQL (Postgres), JavaScript, TypeScript, OCaml, HTML, Bash, MIPS Assembly

**Frameworks:** React, Node, Express, Django, Jest

**Technologies:** Git, Unix/Linux, Windows, AWS, Docker, Postman, CSS/Sass