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, Programming Language & Paradigms, Software Design & Development, Operating Systems, and Probability.

Experience

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**

Personal Site | *React, TypeScript, Sass, Bash* **June 2022**

- Created a pure frontend web application using **TypeScript React** and **Sass**, complete with a photo gallery for my photography, and a snake game. Used **Google Analytics** to monitor traffic

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 **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, HTML, CSS/Sass, Bash, MIPS Assembly
Frameworks: React, Node, Express, Django, Jest
Technologies: Git, Unix/Linux, Windows, AWS, Docker, Postman