Gabriel Thompson

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RELEVANT SKILLS

Programming/Markup Languages: JavaScript, TypeScript, Python, Java, HTML/CSS, Processing, LaTeX, Sonic Pi
Misc. Tools/Frameworks: React.js, Next.js, Flask, SQL, Mongo, Git/GitHub, Bootstrap, Tailwind, Google Firebase, NumPy

EDUCATION

2023 - now	**University of Toronto** (BS, Computer Science) *(GPA: 3.94/4.00)*
	Relevant Coursework: Theory of Computation, Software Development, Multivariate Calculus, Linear Algebra
2019 - 2023	**Stuyvesant High School**
	Relevant Coursework: Software Development, Computer Graphics, APCS, AP Calculus BC

EXPERIENCE

Web Development Team Lead – University of Toronto CS Student Union　　　　　　　　　May 2024 - present

– Co-built **Next.js**-based website for **400+** students at September 2024 orientation and other CSSU events. which users can scan QR codes (updated every 15 seconds) at orientation booths to log their attendance. Link to project source code
– Wrote protocol for generating and validating QR codes using **HMAC encryption**, built **API** for sending QR codes from server to client. Built **Tailwind** frontend for website for orientation leaders and students, backend in **PostgreSQL**.
– Re-designed hackathon GenAI Genesis's site with **Next.js**, **Firebase** and **Tailwind.css** (for use by **300+** attendees).
– Promoted to team lead in Oct 2024. One of two leads in team of 14 devs re-designing CSSU site for **4300+** members.

Software Engineering Intern – Snorkle Labs　　　　　　　　　　　　　　　　　　　　May 2024 - Aug 2024

– Built **Python** pipeline to match natural language body part names to **4,000+** mesh IDs in **10+** GLB medical models.
– Wrote script to pre-process medical models, assigning codes from the FMA ontology to each mesh ID. Created matching algorithm, which works by finding FMA code of body part name, then **recursively** searching children and ancestors of that code using OLS4 API to finds a mesh ID with a matching FMA code.
– Built **React** & **Bootstrap**-based feature for users to generate anatomical presentations with **GPT-4** and view them. Includes ability to edit & save presentations to user account via **AWS Lambda** function accessing **DynamoDB** table.

SWE Mentee — Google Mentorship Program　　　　　　　　　　　　　　　　　　　　　Feb 2023 - Jun 2023

– Led team to create DAFTER-GPT, a **JS**-based **Chrome extension** and **Python**-based tool for training an **LLM** to write emails in my writing style, given a corpus of my past emails. Advised by Google Software Engineer.
– Created **Python** data pipeline to fine-tune **GPT-3** model on a corpus of **500+** emails and generate new emails given new prompts. Model trained via the **OpenAI API**. Link to project source code
– Presented final project to **10+** Google NYC employees. Received positive feedback on project from program director.

IT Director — Stuyvesant Writing Center　　　　　　　　　　　　　　　　　　　　　　May 2022 - Jun 2023

– Built and deployed full-stack website to manage school's Writing Center for **3,300+** students and **50+** editors across all four grades. Website built in **Python**, **Flask**, **SQL**, and **JS**, deployed via **DigitalOcean**. Link to project
– Developed user authentication system for **300+** accounts, editor feedback system, and email notification system to send **2,000+** emails to **500+** email addresses. Oversaw **24/7** deployment of website for **8,000+** hours.

OTHER PERSONAL PROJECTS

– **Personal Blog** – Wrote 6,500+ words on CS & math-related topics, including SHA-256 and 12 tone-equal temperament
– **PawPoints** - Web app to track the locations of nearby stray cats and when they were last fed. Won 1st place out of 54 teams at NewHacks 2023. Back-end written with **Google Firebase** and **SvelteKit**, front-end written with **Tailwind**.
– **MIDI Harmonizer** - A **Python** tool for auto-tuning vocals to multi-voice MIDI arrangements using the **PSOLA** algorithm. Built with **Librosa**, **NumPy**, and **Jupyter Notebook**.
– **Layover Calculator** – Web app that uses data from the Yelp and **Google Maps API** to generate suggestions for activities during flight layovers. Back-end in **Python**, **Flask**, **SQL**, front-end in **Bootstrap**, **JavaScript**, & **Jinja**

HONOURS & AWARDS

– 1st place at NewHacks 2023 (out of 54 teams). My team was awarded $600. Project link
– 2nd place at StuyHacks 2021 (out of ∼20 teams). Project link