Gabriel Thompson

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Relevant Skills

Languages: JavaScript, TypeScript, Python, Java, SQL, Bash, Processing, Sonic Pi
Tools: React.js, Next.js, Flask, Mongo, Tailwind, DevOps (GitHub Actions, Vercel), Git, AWS Lambda, NumPy

Education

2023 - 2027 **University of Toronto** (BS, Computer Science) *(GPA: 3.94/4.00)*
Activities: Technology Leadership Initiative (One of 29 students in my year selected), CSSU, UTMIST
2019 - 2023 **Stuyvesant High School**

Experience

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.
- Snorkle got high score on request for **$286k** in **NIH funding**, with my **GPT-4** feature cited as key reason by reviewers

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

- Co-built **Next.js** and **TypeScript**-based site for **400+** students at Fall 2024 orientation and other CSSU events, with which users can scan QR codes (updated every 15 seconds) at orientation booths to log their attendance. 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, backend in **PostgreSQL**. Deployed to **Vercel**. **CI/CD** in **GitHub Actions**.
- 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 **5000+** members.

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**.
- Presented final project to **10+** Google NYC employees. Received positive feedback on project from program director.

Student Full-Stack Developer Lead — 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.

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. Written in **TypeScript**. Back-end in **Google Firebase**, **Svelte**. Front-end in **Tailwind**.
- **Once Upon a Chat** - Website allowing users to upload WhatsApp group chats and get reports on top participants. Written in **TypeScript**. Backend in **Next.js**, frontend in **React.js** and **Tailwind**. Auth and database in **Firebase**.
- **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**.

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