William Pai

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Education

McMaster University Hamilton, ON
Bachelor of Engineering, Software Engineering Co-op *Sep. 2020 – Apr. 2024 (Expected)*
Relevant Coursework:
Data Structures and Algorithms (Java), Databases (SQL), Software Development (C),
Concurrent Programming (Java, Go, Python), Software Design & Requirements (Java)

Technical Skills

Languages: JavaScript, TypeScript, Java, Dart, Python, C, Go, Bash, SQL, Swift, HTML, CSS
Frameworks: Flutter, React Native, React.js, Angular.js, Vue.js, SwiftUI, Node.js, Express.js, PyQt, Flask
Tools: Git, Tailwind CSS, AWS, Google Cloud Platform, MongoDB, Figma, Adobe XD, BeautifulSoup, Puppeteer

Experience

McMaster Engineering Society May 2023 – Present
Infrastructure Technology Lead *Hamilton, ON*

- Redesigned McMaster University's outdated booking system using **React.js**, **TypeScript**, **Tailwind CSS**, **Next.js**, and **MongoDB**, with a focus on usability, and speed, to be used by over 5,000 students
- Crafted a custom **UI/UX design** from scratch, enhancing overall user interaction, satisfaction, and accessibility
- Increasing efficiency by optimizing the booking process, reducing the average meeting room booking time by **6x**

InsideDesk Inc. May 2022 – Sep. 2022
Software Engineer Intern *Toronto, ON*

- Developed additional features for InsideAssist software using **Angular.js**, **TypeScript**, **MySQL**, **Linux**, **Python**, **Flask**, and **REST APIs**, improving management of **4 million** dental insurance claims annually
- Designed and implemented a **Google Chrome extension** using **React.js**, **Material UI** library, **TypeScript** and **Auth0**, aiding easy access to patient's insurance logins
- Developed reusable **React.js** components using **React Hooks** for scalability and efficient state management
- Improved **JavaScript UI tests** using **Cypress.io**, ensuring minimal errors from future upgrades, and integrating tests into a **CI/CD pipelines** using **GitHub Actions** for automated testing
- Leveraged **AWS S3** to manage **millions** of claims, utilizing different pipelines for effective testing and deployment
- Maintained **25 JavaScript** and **Python** web scrapers increasing data fetching effectiveness by **7%**

WaveDirect Telecommunications May 2021 – Aug. 2021
Software Developer Intern *Leamington, ON*

- Developed a desktop application to parse 10,000 financial data entries into **Linux** systems using **Python** & **PyQt**
- Automated handling **2,000** DMCA infringement notices annually using **Python**, **Flask**, **Gmail API**, and **SQL**
- Designed an onboarding/offboarding system integrating **AWS Lambda** & **CloudWatch**, and **Python** Slack bot

Projects

Subway Transit Systems Analysis | *Python, Pytest, Flake8, Matplotlib, Jupyter Notebook*

- Implemented a **graph data structure** to represent and manipulate real-world transit network data parsed from **CSV**, implementing classes and functionalities for **analyzing and quantifying graph metrics**
- Developed a **graph traversal algorithm suite**, implementing **Dijkstra's** and **A*** shortest path algorithms, and **benchmarked** both algorithms in terms of execution time and **KPIs** to identify optimal travel itineraries
- Implemented solutions in the development of a subway patrol planning system based on the **Traveling Salesman Problem (TSP)**, and added functionalities to compute the most efficient path covering selected subway stations
- Identified transportation network zones and isolated islands by developing a library function to identify **strongly connected components (SCC)** within each zone

Cabpool | *React Native, Node.js, Express.js, Google Maps API, Google Firebase*

- Created a **React Native mobile application** for a taxi ride-sharing service to add carpool matchmaking
- Developed a robust backend using **Node.js** and **Express.js**, connecting multiple user devices for communication
- Utilized **GCP Firebase** for effective data storage and management, using encryption for high-level security
- Incorporated **Google Maps API** to calculate the most efficient route, ensuring optimal drop-off sequences