Simon Ou

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Skills

Languages: C, C++, C#, CSS, HTML, Java, JavaScript, Python, SQL, TypeScript
Frameworks: Android, Apollo, ASP.NET, Express, Kafka, LWJGL, PostgreSQL, React, RPA, Unity, Xamarin
Tools: AWS, Azure, Docker, Firebase, GCP, Git, Grafana, Octopus, RDP, Swagger, Unix

Work Experience

TOOLBX   Toronto, ON
Software Engineering Co-Op (Full Stack)   *Jan 2023–Apr 2023*

- Spearheaded, shipped, and maintained various multi-store functionalities, using **React**, **Express**, **GraphQL**, and **PostgreSQL**, to broaden TOOLBX features offered to e-commerce dealers with multiple physical store locations.
- Expanded product catalogue and delivery address search algorithms, using libraries such as **Algolia** and Google's **Maps API**, to accommodate continuously growing e-commerce product data and delivery fulfillment needs.
- Engineered an automated integration for exporting and parsing PDFs, using an **RPA** on an **Amazon EC2** instance, to autonomously extract and synchronize invoices from e-commerce dealers operating with third-party ERP software.
- Devised a FE/BE GraphQL schema compatibility check, built into a **GitHub Actions** CI/CD pipeline, to block the deployment of incompatible back-end changes.

Plenty of Fish   Vancouver, BC
Software Engineering Co-Op (Full Stack)   *May 2022—Aug 2022*

- Constructed profile and account-related mobile web pages, using **React**, to modernize the online dating experience for **millions** of daily users worldwide.
- Pioneered initiatives to improve web user account quality by migrating the web application to a new user validation API gateway using React and **ASP.NET**.
- Formulated **REST API** microservice endpoints and data schemas, using ASP.NET, **PostgreSQL**, and **Kafka**, to introduce new profile marketing features to the Plenty of Fish dating platform.
- Designed and implemented unit and integration tests across the stack, using **Jest/Enzyme** and **XUnit/Moq**, to ensure that applications remained robust and reliable, with at least **80%** frontend and **100%** backend code coverage.

Projects

Unreleased 3D Battle Royale

- Developed and hosted an end-to-end encrypted real-time multiplayer server, built with **UDP** sockets on **.NET** and deployed to an **Azure VM**, to allow game clients to interact and communicate with one another.
- Crafted a 3D physics-bound, multiplayer-friendly character controller in **Unity**, enhanced with client-side prediction and server reconciliation, to promote smooth gameplay while maintaining server-driven state synchronization.

Embedded Autonomous Voice-Controlled Chessboard

- Programmed and optimized a stateful move-checking chess algorithm, in **C**, to guide gameplay on the physical chessboard.
- Consolidated mechanical and software subsystems, using **Python**, to allow mechanical chessboard components to interact with the move-checking program and respond correctly to vocally issued move commands.

Awards

Bronze Medalist, *Canadian Computing Olympiad* (24/2827 in Canada to qualify)   *May 2020*
Invitee, *Canadian Mathematical Olympiad* (83/7000 in Canada to qualify)   *Mar 2020*

Education

University of Waterloo   Waterloo, ON
Bachelor of Software Engineering   *Sep 2021—Present*
(Presidential Scholarship of Distinction)