Simon Ou

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Skills

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

Work Experience

TOOLBX Toronto, ON
Software Engineer *(May 2023 – Present)* *Jan 2023 – Present*
Software Engineering Co-Op *(Jan 2023 – Apr 2023)*

- Implemented multi-channel messaging, using React, **Express**, and **PostgreSQL**, to support product requirements of newly onboarded e-commerce businesses with multiple store locations.
- Augmented search algorithms, using **GraphQL** and **Algolia**, to support granular price variations across **130K+** products.
- Engineered an **RPA** integration to autonomously extract, parse, and synchronize **$500K+** of daily invoices from e-commerce businesses operating with third-party ERP software.
- Devised a GraphQL compatibility guard with **GitHub Actions** to reduce the rate of schema-related API failures to **0%**.

Plenty of Fish Vancouver, BC
Software Engineering Co-Op *May 2022 – Aug 2022*

- Reconstructed mobile web pages for profiles, preferences, and account settings, using **React**, to modernize the online dating experience for **1M+** daily users worldwide.
- Formulated REST API microservice endpoints, using **ASP.NET**, **Kafka**, and PostgreSQL, to introduce new profile marketing features that boosted user engagement.
- 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%** front-end and **98%** back-end code coverage.

Projects

Upcoming 3D Battle Royale Oct 2022 – Present

- Developed an AES-encrypted multiplayer server, using **.NET UDP** sockets, to securely communicate complex real-time player movement data across network clients at less than **5 KB/s** per client.
- Incorporated a client-side prediction and server reconciliation algorithm to promote smooth **Unity (URP)** gameplay and server-driven state synchronization while consuming less than **1 ms** of time overhead per frame.
- Established an entity-component system to maintain project scalability through the separation of data and behaviours.

Automated Voice-Controlled Chessboard Oct 2021 – Nov 2021

- Programmed a stateful move-checking chess algorithm, in **C**, to guide gameplay on the physical chessboard.
- Consolidated move-checking, speech-to-text, and mechanical actuation subsystems, using **Python** on an **Arduino**, to allow stepper motors and the electromagnet to respond correctly to vocally issued move commands.

Ideal Gas Laws Simulation Nov 2019 – May 2020

- Architected a 3D ideal gas particle simulation, using **Java Swing**, to verify the mathematical relationship between the ideal gas laws and classical kinematic equations.

YRDSB Student Planner App Mar 2019 – Mar 2020

- Designed and built an **Android** student utility app, employing **Google**/**Twitter APIs** to fetch live updates related to school announcements and calendar events.
- Created a **.NET TCP** socket server that used **SMTP** to authenticate users through student email verification.

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)