Simon Ou

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Skills

Languages: TypeScript/JavaScript, C/C++, C#, SQL, HTML/CSS, Rust, Java, Clojure, OCaml
Frameworks: React, Next.js, Node.js, Express.js, GraphQL, PostgreSQL, .NET, ASP.NET, Unity, Arduino
Tools: Docker, Git, Linux, AWS, GCP, Azure, Grafana, Amplitude, Postman, Figma, Retool

Education

Bachelor of Software Engineering | University of Waterloo — Sep 2021 – Present
Courses: Data Structures & Algorithms, Operating Systems, Database Management, Optimization, Statistics, UI

Work Experience

Jane Street | Software Engineering Intern — May 2025 – Present

Warp | Software Engineering Intern — Feb 2025 – May 2025

Composer | Software Engineering Intern — May 2024 – Aug 2024

- Overhauled the client onboarding and brokerage account creation systems, using *Leiningen*, *PostgreSQL*, and the Alpaca API, to equip **120K+** existing users with the ability to begin trading crypto assets in addition to U.S. equities.
- Restructured and redeployed the scheduler component of the account rebalancing system responsible for **$46M**+ of daily trading volume, with *Clojure* and various *GCP* services, to meet the scheduling requirements of varying asset classes.
- Fortified user identity verification measures, using the Plaid and Footprint APIs, to thwart **160+** suspicious weekly bank linking and account funding attempts on the Composer trading platform.
- Refined the backtesting date selection algorithm, in *Clojure*, to provide maximal historical data for building trading strategies.

TOOLBX | Software Engineering Intern — Jan 2023 – Dec 2023

- Architected an order fulfillment and payment system to enable **42%** of all previously manual order conversions to be transacted within an end-to-end platform using *React*, *Express.js*, and *PostgreSQL*.
- Augmented search algorithms, using *GraphQL* and Algolia, to support granular price variations across **130K+** products.
- Engineered robotic process automations, written in *TypeScript*, to autonomously extract, parse, and synchronize **$500K+** of daily invoices from third-party software used by construction materials businesses.
- Devised a GitHub Actions CI/CD workflow to bring compatibility-related deployment failures from **6+** per month down to **0**.

Plenty of Fish | Software Engineering Intern — May 2022 – Aug 2022

- Modernized the online dating experience for **1M+** daily worldwide users by reconstructing profile management, dating preferences, and account settings webpages from the ground up using *React* and *TypeScript*.
- Formulated new REST API endpoints for profile marketing features, using *ASP.NET*, *Kafka*, and *PostgreSQL* within a distributed microservice architecture, to boost new user engagement by **12%**.
- Implemented unit and integration tests across the stack, using *TypeScript* (Jest & Enzyme) and *C#* (XUnit & Moq), to ensure program correctness and determinism with at least **80%** front-end and **98%** back-end code coverage.

Pentabyte Studios | Lead Software Engineer — Jan 2022 – Aug 2022

- Spearheaded the production of an open-world multiplayer role-playing game built using *Unity*, *Polygon*, and *Azure* services.
- Directed and coordinated art, design, and development teams comprised of **10** ambitious employees by distributing responsibilities, setting project deadlines, and running scrum meetings.

Projects

Battle Royale Prototype | Unity, Azure, .NET, C# — Oct 2022 – Sept 2024

- Developed and optimized 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 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.

Automatic Chessboard | Arduino, Python, C — Oct 2021 – Nov 2021

- Programmed a stateful move-checking chess algorithm, in *C*, to guide gameplay on a 25" x 25" plywood chessboard complex.
- Consolidated move-checking, speech-to-text, and mechanical actuation subsystems, using *Python* on an *Arduino*, to allow stepper motors and an electromagnet to respond correctly to vocally issued move commands.

YRDSB Student App | Android, Xamarin, C#, Java — Mar 2019 – Mar 2020

- Designed and built an *Android* utility app for students of the York Region District School Board, employing Google and Twitter APIs to fetch live updates related to school announcements and calendar events.
- Centralized client-server communication with a handmade *.NET* TCP socket server that used SMTP to authenticate users through passwordless student email verification.

Awards

Bronze Medallist, *Canadian Computing Olympiad* (24/2827 in Canada) — *May 2020*
Contender, *Canadian Mathematical Olympiad* (83/7000+ in Canada) — *Mar 2020*
Perfect Score, *Fermat Mathematics Contest* (23/19393 worldwide) — *Feb 2020*