Harrison Chiu

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Languages: JavaScript/TypeScript, C++/C, Python, Java, HTML/CSS, SQL, Scala, C#, Swift
Technologies: React, NodeJS, Redux-Saga, AWS, NumPy, GraphQL, Django, OpenCV, Azure, ASP.NET

Education

University of Waterloo   *2020 - 2025*
Bachelor of Software Engineering | CAV: 91.43%, GPA: 3.9/4.0 - Dean's List x5

Experience

Incoming Software Developer @ Databricks 🔗   *Jan 2024 - Apr 2024*

Intuit 🔗 | Software Developer   *May 2023 - Aug 2023*
- Architected and led the development of a **TypeScript CLI** to auto-generate **Java** integration test files by parsing and processing data for **100+** user pages to validate end-to-end customer flows, securing **90% line coverage**
- Wrote a **boolean expression solver** to derive variable sets which test visibility conditions of **3k+ assets**, recursively handling **40+ expression types** accounting for nested negation, functions, variable type, inequalities, and arithmetic
- Migrated **100+ TurboTax pages** by writing **data transformation** CLIs with **TypeScript**, collaborating with cross-functional teams to ensure accurate outputs of redirect and download URLs and valid mappings of client data fields
- Drove a technical investigation to hybridize regional **TurboTax** plugins affecting **100k+ international users**

Faire 🔗 | Software Developer   *Sept 2022 - Dec 2022*
- Implemented, tested, and shipped a brand product recommendation email to **boost annual GMV projection by $500k** using MJML to render personalized promos supporting localization and compatibility across email clients
- Spearheaded the **open-source launch** of npm library 🔗@mjml-react by writing GitHub Actions to auto-deploy builds, migrating to **TypeScript** for strict type safety, and authoring contributor guides to support **350k+ downloads**
- Initiated a platform-wide HTML sanitization process in order to mitigate **60+** brand portal **XSS attack vulnerabilities**
- Streamlined the email review process for **100+ email templates** by building an internal web interface using **MobX**, **React**, and Jest, reducing development efforts and errors by employing input validation and query limiting
- Improved UX for emailing **100k+ brands** by refactoring timeline, translation, and profile displays in **TypeScript**

Move with Fleet 🔗 | Software Developer   *Jan 2022 - Apr 2022*
- Launched a catalog web page showcasing **85+ transit companies** with **React**, managing state via **Redux**-**Saga** and **Django** REST and devising an efficient client-filter system with analytic tracking via Segment
- Optimized **SQL** queries to create usage reports of **250+ users with 15% speedup** using **Django** ORM and Template
- Created mobile views to **improve PCI security compliance by 25%** via Stripe API (i.e. virtual cards) in **React Native**

Hockeystick 🔗 | Software Developer   *May 2021 - Aug 2021*
- Connected **80+** startups with venture capital by **deploying a matchmaking platform** in **React**, **GraphQL**, and **C#**
- Automated and shortened the user account deletion process by **4 hours**, adding database fields by applying **SQL backfills** and EF Core migrations, collaborating with designers to build responsive web pages in **TypeScript** & Less.js

Projects

ClassifAIcation 🔗 | Self-Engineered Neural Networks
- Developed a robust classification neural network from scratch using **Python** and **NumPy**, implementing feedforward & backpropagation architecture with hyperparameter fine-tuning to achieve **92.8% test accuracy** on handwritten digits
- Adapted to classify drawings and messenger data; deployed a 🔗web-app to **predict as users draw** in real-time

Sea OS | Real-Time ARM Operating System
- Engineered a **real-time OS in C** to multitask **6+ processes** using a multi-level feedback queue scheduling algorithm
- Programmed advanced features such as **dynamic memory allocation**, inter-process communication via **message queues**, priority switching & preemption, interrupt-driven I/O, timer interrupts, and user privileges for memory chunks