JUSTIN BORROMEO

justborromeo@gmail.com
github.com/justinborromeo | (647) 460-0061

TECHNOLOGIES USED

- **Programming Languages:** Java, C/C++, Python, JavaScript, C#, SQL, HTML, CSS
- **Data Infrastructure:** Cassandra, Druid, MongoDB, MySQL, SQL Server, PostgreSQL, S3, Kafka, Kinesis, Hadoop
- **Other:** git, Docker, pandas, TensorFlow, Keras, gRPC, Protocol Buffers

WORK EXPERIENCE

UWaterloo, Undergraduate Research Assistant (Prof. S.M. Zahedi, ECE)	January 2020 – Present

- Currently using **reinforcement learning** and **autoencoder networks** to tune resource allocation for collocated datacenter workloads using low-level hardware metrics; writing **C** and **Python** (with **TensorFlow**)

Google, Software Engineering Intern - Anti-Malvertising Team	September – December 2019

- Developed and deployed a **C++** data pipeline to proactively detect security vulnerabilities in ads' landing pages
- Built a **Java gRPC** service to fingerprint webpage's technologies based on served HTML/CSS/JavaScript
- Added functionality to a **C++** data pipeline to evaluate impression, click, and advertisement impact of blacklisting IPs
- Experimented with using **Keras** neural networks to predict compromises using detected technology features

Imply, Database and Distributed Systems Engineering Intern	January – April 2019

- Contributed [~20 **Java** features and patches](#) to the **Apache Druid** OLAP database (see Open Source section)
- Added functionality to the Imply cluster management system that publishes user activity and cluster heartbeat data to **Kafka** streams for analytics and debugging

Toast, Software Engineering Intern – Payments Core Team	May – August 2018

- Built streaming infrastructure for credit card data using **Java, Dropwizard,** and **AWS Kinesis,** and **Dockerized** tests
- Developed tooling for identifying data synchronization issues using **AWS S3** and **PostgreSQL**
- Built a serverless function for measuring integration test flakiness using **AWS Lambda** and **MongoDB**

Lytx – Software Engineering Intern	January – April 2017, August – December 2017

- Implemented JSON Web Token authentication and authorization for an **ASP.NET MVC** application and **RESTful API**
- Designed a geohash indexing system and developed a proof-of-concept web application that supports sub-second geospatial queries on TB of GPS data using **Cassandra**, **Node.js**, **Express**, and **JQuery**

OPEN-SOURCE CONTRIBUTIONS

Apache Druid (Java), Open-Source Petabyte-Scale Analytics Database	github.com/apache/incubator-druid

- Contributed time-based ordering for streaming SELECT queries, modified the **SQL** planner to support the new functionality, and benchmarked for regressions using Java Microbenchmark Harness
- Wrote a clean-room implementation of the AWS Kinesis Client Library's **protocol buffer** de-aggregator
- Added an API endpoint for exposing ingestion supervisor state and recently thrown errors

EDUCATION

University of Waterloo Mechatronics Engineering with Option in Artificial Intelligence, Class of 2021

- Recipient of the Arthur F. Church Engineering Entrance Scholarship, UW President's Scholarship, Professional Engineers Ontario Scholarship, and the Wells Fargo Scholarship