

# Richard Wu

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## Experience

### Google | Software Engineering Intern

Mountain View, CA

Hands-on research on the Cloud & Borg team working primarily in C++, Go, and R.

- Ported, optimized and extended Go scheduling simulator—still in use by the Borg team—*reducing simulation runtime by 60x*.
- Simulated and benchmarked the impact of a cluster NUMA-aware algorithm on job scheduling; **drafted white paper for publication**.
- Analyzed CPU usage time-series to identify and implement improved load prediction algorithm, *reducing forecast lag from 47 to 7 seconds*.

### Shopify | Developer Intern

Ottawa, ON

Backend work on shipping micro-service in Ruby and full-stack work on core Shopify platform in Rails.

- Introduced **ETL framework** with smaller, testable modules for polling tracking data from shipping carrier APIs.
- Implemented bulk USPS tracker polling, decreasing upper bound delay for tracking updates from *a few hours to 15 minutes*.
- Integrated shipment options, enabling **300k+ merchants** to purchase shipping label add-ons.

## Publications

### Cluster-Level NUMA Implementation & Evaluation

*Co-author of paper* on a NUMA-aware scheduling algorithm and its impact on Google workloads.  
**Pending review for publication at HPCA'18.**

## Projects

### Studbuds.com Tutoring Marketplace

**Founder and lead developer.** Rails web app that supports Stripe P2P payments, live notifications, and live chat over WebSockets. **250+ beta users.**

## Awards

### 1<sup>st</sup> Place, Citadel Datathon

May 2017

\$20,000 cash prize. Analyzed NYC transport data with statistical models to draw key conclusions in a team of 4.

- Employed **L2 logistic regression with 5-fold cross-validation** to predict transportation type given test rider with **mean AUROC of 0.7**

### 1<sup>st</sup> Place, Hack the North

September 2015

Top 12 teams out of 230+. Built an Android app that anonymously livestreams video to a web interface in a team of 4.

### 6<sup>th</sup>/6000+, Canadian Senior Mathematics Contest

### 98<sup>th</sup> Percentile, Canadian Open Mathematics Challenge

## Education

### University of Waterloo

Bachelor of Computer Science, Honors, 2020

**GPA: 90%**

- Dean's Honor List
- President's Scholarship of Distinction
- Software Engineering Entrance Scholarship
- Joe C. Lee Math Entrepreneurial Scholarship

## Online

- Machine Learning (Coursera)
- ML with TensorFlow (Google)
- Supervised Learning with scikit-learn (DataCamp)

## Skills

### Languages

C++ • Python • Go • Ruby • R • SQL • Bash • C • JavaScript

### Frameworks & Libraries

Linux • Rails • scikit-learn • pandas • matplotlib • data.table • ggplot2 • TensorFlow • Redis • Node.js • NGINX