

# Richard Wu

richardwu.ca – me@richardwu.ca – github.com/richardwu – linkedin.com/in/rwu1997 – 347-440-5684

## Experience

### Cockroach Labs | Software Engineering Intern

New York, NY

Distributed SQL batch processing framework for CockroachDB (Go).

- Introduced parallel stddev/variance aggregations and eliminated redundant aggregations, **reducing certain query times by 10-20%**.
- Designed and implemented more efficient SQL joins for interleaved tables ([RFC](#)), yielding **2.24x throughput and 50% reduction in latencies.**

### Google | Software Engineering Intern

Mountain View, CA

Hands-on research on the Borg team (C++, Go, R).

- Optimized and extended scheduling simulator, **reducing simulation runtime by 60x**.
- Analyzed CPU usage time-series to identify and implement improved load prediction algorithm, **reducing forecast lag from 47 to 7 seconds**.

### Shopify | Software Developer Intern

Ottawa, ON

Backend and full-stack work on shipping API (Ruby).

- Integrated bulk CSV polling, decreasing update times from **a few hours to 15 minutes**.

## Publication

### NUMA Implementation & Evaluation

**Co-author of paper** on a NUMA-aware scheduling algorithm and their impact on Google workloads.

**Pending review for publication at CCGRID'18.**

## Projects

**BetterSQL optimizer** [git.io/vbaEg](https://git.io/vbaEg)  
Prototype SQL query optimizer in OCaml.

### [Studbuds.com](#) Tutoring Marketplace

**Founder & lead developer.** Rails web app with live notifications and chat over WebSockets. **250+ users.**

## Awards

### 1st Place, Citadel Data Open

May 2017 & December 2017

Represented the University of Waterloo at the Data Open Championships after placing 1<sup>st</sup> out of 20 teams at the regional qualifiers.

- Employed **regression & classification models** such as penalized linear reg. and random forest to formulate statistically sound [conclusions on US education data](#).

### 1st 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.

### 6th/6000+, Canadian Senior Math Contest

### 98<sup>th</sup> percentile, Canadian Open Math Challenge

## Education

### University of Waterloo

Bachelor of Computer Science, Honors, 2020  
**GPA: 90%**

- President's Scholarship of Distinction
- Software Engineering Scholarship
- Joe C. Lee Math Entrepreneurial Award
- K.C. Lee Computer Science Scholarship
- Konrad Group Technology Scholarship

## Online

- Machine Learning (Coursera)
- ML with TensorFlow (Google)

## Skills

### Languages

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

### Frameworks & Tools

**Linux • scikit-learn • pandas • numpy**  
**• matplotlib • TensorFlow • Postgres • Rails**