

**Zhiyan Foo**  
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## EXPERIENCE

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### Quantcast

*Software Engineering Intern*

Singapore

*March 2017 - July 2017*

**The Company:** Quantcast uses big data to target advertisements at an online audience.

**The Team:** Ad Services Engineering team: responsible for the data generation of advertising campaigns and its distribution to the real-time bidding (RTB) system.

#### The Projects

- Primarily worked on RTBconf, an ETL (Extract, Transform, Load) Django App that took data from heterogeneous sources, and sorted them into various protobuf files.
- Improved performance of the sharder: a RTBconf component that split the master configuration file so that bidding engines in different geolocations only received the necessary data.
- Benchmarked performance of the generation of RTB configuration files, identified bottlenecks, and proposed and implemented performance improvements.
- Added logging and improved exception handling of the sharding process.

### Singapore Armed Forces

*Conscript – Army*

Singapore

*February 2015 - February 2017*

## EDUCATION

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### University of Waterloo

*Candidate for Bachelors of Mathematics*

Waterloo, CA

*August 2017 – Present*

## PROJECTS

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**crunch-shake:** A python library that evaluates scripts on the Bechdel Test and other similar metrics.

Source Code : [github.com/zhiyanfoo/crunch-shake/](https://github.com/zhiyanfoo/crunch-shake/).

## PROGRAMMING SKILLS

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LANGUAGES – **Proficient:** python (5+ years). **Familiar:** Haskell, C, Java, Racket,  $\text{\LaTeX}$ .

TECH/FRAMEWORKS – Git, \*Nix, Django, numpy.

## ADDITIONAL COURSEWORK

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### Real Analysis, Convexity and Optimization

Harvard Extension School

Upper-division pure math course focused on optimization problems with convex sets, normed infinite-dimensional vector spaces, and convex functionals.

### Learning From Data

Caltech Telecourse

Introductory Machine Learning course focused on mathematical rigor. Machine Learning algorithms built from scratch include Perceptron with Stochastic Gradient Descent, hard-margin Support Vector Machines and Logistic Regression. For hard-margin SVM, an external convex optimization package was used.

Source Code : [github.com/zhiyanfoo/caltech-machine-learning/](https://github.com/zhiyanfoo/caltech-machine-learning/)

### Algorithms on Strings

Coursera, University of San Diego

String compression and search algorithms e.g. Suffix Trees, Burrows-Wheeler Transform and Knuth-Morris-Pratt.

*I've been taking online college courses in addition to school or work since I was 16. It's how I started programming.* Complete list of additional coursework done can be found at [zhiyanfoo.github.io/learning/](https://zhiyanfoo.github.io/learning/).

## EXTRACURRICULARS

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Haskell Club Founder ([haskelluw.com](https://haskelluw.com)). Captain of Intramural Futsal Team (Casual level).  
Dungeons and Dragons.