

# Max Gao

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## Languages Tools

C++, C, Scala, Java, Python, Ruby  
Docker, Kubernetes, Redis, Spanner, MySQL, Git

## Experience

### Software Engineering Intern - Google

*Jan-Apr 2019*

C++, SQL

- **Designed** and partially implemented **new architecture** for an auto-disablement feature used by ads-experiments to support customized analysis on crash event data
- Leveraged **data visualization** tool to display production crash metrics, reducing overall developer debugging time
- Implemented service based **monitoring** and **auto-alerting** using various internal tools
- Added **RPC (Remote Procedure Call)** endpoint for reporting aggregated crash events

### Backend Engineering Intern - MyFitnessPal

*May-Aug 2018*

Scala, Ruby

- Created a search-term based advertisement service with a **REST API** serving 3,000,000+ searches per day
- Reduced latency in API calls by automating scaling with **Kubernetes** and **Docker** and using a shared remote **Redis** cluster for caching search terms
- Identified and resolved errors within the legacy backend affecting 8,000+ users

## Projects

### Neural Networks

Python

- Created forward-pass and back-propagation for **fully-connected**, **recurrent**, and **convolutional neural networks** without use of external machine learning libraries
- Implemented and tested different activation functions (sigmoid, relu, tanh, softmax) and cost functions (quadratic cost, cross-entropy) to **reduce training time** and **improve performance accuracy**

### Rock Paper Scissors Robot

Python

- Created a dataset and trained a fully-connected neural network, which classified images between rock, paper, and scissors with up to 98% accuracy using **supervised learning**
- Utilized **L2 regularization** to prevent overfitting and improve real-time performance
- Played rock-paper-scissors live by receiving a constant feed of input from a camera, passing the image through the trained neural network

## Awards

Best Machine Learning Hack at Hack Western 4  
Top 1% in Canada for Euclid math contest (Honor Roll)  
National AP Scholar (Canada) and AP Scholar with Distinction

## Education

### University of Waterloo Candidate for Bachelor of Software Engineering

*2017-2022*

- *Dean's Honors List - Cumulative GPA 92.6/100*

## Interests

Weight Lifting, Foosball, Ornamental Fish and Shrimp Keeping