Max Gao

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

Experience

Software Engineering Intern - Google, Waterloo
Jan 2019-Present

- Worked on **RPC** endpoint for reporting crash events for service that stores event data and auto-disables experiments highly suspect of causing crashes in production
- Designed and implemented **metric collection** and **alerting** using internal tools
- Created internal **dashboard** to display event analysis data related to the auto-disablement feature

Backend Engineering Intern - MyFitnessPal, San Francisco
May 2018-Aug 2018

- Created and **dockerized** a search term based advertisement service with a **REST API** serving 3,000,000+ searches per day
- **Reduced latency** in API calls by automating **horizontal scaling** with **kubernetes**, and using a shared remote **Redis** cluster for caching search terms
- Identified and resolved errors within the legacy backend affecting 8,000+ users
- Fulfilled product and timeline requirements by in an agile environment

Personal 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
- Gained understanding of the calculus and linear algebra behind back-propagation with different types of neural networks
- Implemented and tested different activation functions, such as sigmoid, relu, tanh, and softmax, and cost functions, such as quadratic cost and cross-entropy to **reduce training time** and **improve performance accuracy**
- Achieved understanding of past and current challenges such as vanishing gradients, overfitting, and difficulty with training deep neural networks

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
  - 5/5 on Physics (B1/C1/C2), Calculus (BC), Statistics, Computer Science A

Education

University of Waterloo *Candidate for Bachelor of Software Engineering* *Exp. 2022*

Interests

Investing, Weight Lifting, Ping-Pong, Foosball, Ornamental Fish and Shrimp Keeping