

# Gabriel Alzate

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## EDUCATION

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### Pomona College, Claremont, CA

Bachelor's in Computer Science, minor in Mathematics; GPA: 3.92 Expected May 2021

Relevant coursework: Data Structures, Algorithms (IP), Machine Learning (IP), Combinatorics (IP), Computer Systems, Linear Algebra, Discrete Mathematics, Intro to Data Science

**Programming Languages:** Proficient in Java, Python, C, C++; familiar with Dart, HTML, CSS, Javascript

## EXPERIENCE

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### Head Computer Science Teaching Assistant; Claremont, CA

Feb 2019 - Present

- Collaborate with a team of experienced students to tutor 35 students in small groups for the Data Structures and Advanced Programming class
- Conduct 2 weekly mentoring sessions to guide students through weekly assignments and address conceptual questions discussed in lecture
- Meticulously grade 6-8 assignments per week, paying close attention to (**Java**) code correctness, design, and reliability; and optimizing code when necessary

### Software Engineering Intern, Kalibrr, Inc.; Manila, Philippines

June 2019 - August 2019

- Conducted intensive research for Kalibrr, a regional online job platform startup, to help transition to a microservice architecture based on HTTP/2.0 + Protocol Buffers
- Engineered demo **gRPC** microservices in **Python** for Kalibrr's **PostgreSQL** database which improved API response deserialization time by a factor of 4 and reduced payload size by 60%
- Created 3 edge and service proxy servers using **Envoy** to maintain HTTP/1.x backward compatibility with Kalibrr's 650 company clients
- Taught myself **Nginx** and basic **Golang** to create and optimize these proxy servers which eliminated all concurrency errors, reducing response time by 50%
- Deployed the demo as a **Flutter** mobile app and Kalibrr's first HTTP/2.0-compliant Docker microservice

### Software Development Intern, Middle Tree (MT); Claremont, CA

Feb 2019 - May 2019

- Developed **Bash** and Zoho scripts to manage the CRM of over 150 students of Middle Tree, a nonprofit education center that provides affordable tutoring
- Created a sign-in/out page that updates MT's database for its daily 10-20 users with a median latency of 32ms using **jQuery** and **Google Sheets API**
- Optimized the webpage style for MT's front desk tablets and deployed the site on Github Pages

## PROJECTS

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**Game Tree:** Built a  $n$ -ary tree in **Java** to create a computer that plays simple, deterministic games such as tic-tac-toe and prunes losing tree branches

**Song and Speech Generator:** Developed a Markov Chain to read songs and speeches with  $n$ -prefix states and produce speeches and song lyrics in **Java**

**Ring Buffer:** Implemented a circular buffer in **C** that uses locks and conditional variables to handle the producer-consumer problem in a thread-safe manner

**PATH:** Created 'PATH', a **Flask** web app that suggests the best travel option in Claremont based on transport, price, time, and distance; incorporated Google Direction Services and Uber API

## CO-CURRICULAR ACTIVITIES

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**Doubles Badminton Player,** 5C Intramural Badminton Team, Pomona College

Sept 2018 - Present

**Board Member, Violinist,** Symphonic Student Association, UC San Diego

Sept 2017 - June 2018