

Alex Chen

COMPUTER SCIENCE STUDENT

☎ (408) 387-9451 | ✉ axchen7@outlook.com | in axchen7

Education

Columbia University, Fu Foundation School of Engineering and Applied Science

New York, NY

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Sept. 2021 - May 2025 (EXPECTED)

- **Relevant coursework:** Data Structures, Physics: Mechanics and Relativity, Multivariable Calculus, General Chemistry — Fall 2021

University of California, Berkeley

Berkeley, CA

PRE-COLLEGE SCHOLARS

June 2020 - Aug. 2020

- **Relevant coursework:** Machine Structures — Summer 2020

Skills

Languages/Frameworks Java, Python, C, HTML/CSS/JavaScript, PostgreSQL, T-SQL, React, GraphQL, Flask, Azure

Creative/CAD Adobe (Photoshop, Illustrator, Premiere Pro), SolidWorks

Computer Microsoft (Word, PowerPoint, Excel, Outlook), Google Docs, LaTeX, Git

Experience

FIRST Tech Challenge — Robotics Competition

San Jose, CA

PROGRAMMING LEAD

Sept. 2016 - May 2021

- Refined the pure-pursuit path following algorithm to make better use of holonomic drivetrains; quicker (autonomous) navigation between waypoints made it possible for the team's robots to score more points during timed matches.
- Established a CAD-first workflow within a 15-member after learning SolidWorks; sped up the prototype/build cycle and increased the team's reliance on 3D-printed parts.
- Delegated tasks to a 3-member programming subteam using GitHub.
- Earned the Control Award at World Championships for excellent robot performance because of well-tested code and innovative computer vision algorithms.

Sleekfin — Real Estate Startup

San Jose, CA

FRONTEND DEVELOPER, GRAPHIC DESIGNER INTERN

May 2020 - Aug. 2020

- Created a full mobile app mockup with 30+ screens in Adobe XD from verbal descriptions of desired functionality.
- Developed React Native components for user input; migrated the existing codebase to use these new components, unifying the app's design language.

Hack on Track — STEM Education Nonprofit

San Jose, CA

CO-FOUNDER, HEAD OF CURRICULUM

June 2018 - May 2021

- Taught weekly coding workshops at community centers and low socioeconomic status schools using self-written lesson plans; covered SCRATCH, Python, and JavaScript; reached roughly 10–20 new students each session.

Projects

KiloDoc — Collaborative Typesetting Web App

JAVASCRIPT, REACT, GRAPHQL, POSTGRESQL, AZURE FUNCTIONS

Apr. 2020 - PRESENT

- Provisioned a full-stack web app consisting of static React code, a GraphQL API running on Azure Functions, and a PostgreSQL database.
- Optimized the performance of infinitely-scrolling cloud documents by designing a tree-like storage format paired with a mechanism to dynamically load/unload subtrees based on browser viewport.
- Wrote SQL queries by hand (as necessary) to speed up performance-critical tasks and enable complex operations like full-text search within a document subtree.
- Solved the tricky issue of PDF generation by using headless Chromium instances controlled by Puppeteer, consuming an Azure Service Bus Queue and writing to Azure Blob Storage.

Foxtrot — Rapid 2D Spline Generation GUI

JAVA

Oct. 2019 - Mar. 2020

- Built a 2D interface using Java Swing for editing splines by drag-and-dropping anchors; supports viewport x/y translation and zoom.
- Utilized by robotics team to rapidly create and test autonomous robot paths.
- Developed a custom file format based on JSON that stores the minimum representation of a path; format also contained an array of coordinates and curvatures along the path for use with path following algorithm.

PALS — Robotics Tournament Scouting Platform

PYTHON, FLASK, T-SQL

Nov. 2018 - Apr. 2019

- Created an online tournament scoring platform on which specifications for each season's robot game could be registered; platform uses game specifications to create scouting forms where each input (checkbox, numeric, etc.) is assigned a point value; platform aggregates form submissions across a tournament to display bar graphs for team rankings and report each team's strengths/weaknesses.