

Andrew H. Lu

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Education

University of California, Santa Barbara

- M.S. in Computer Science, Class of 2022
 - Cumulative GPA: 3.90
- B.S. in Computer Engineering, Class of 2021
 - CE's Outstanding Senior, Cumulative GPA: 3.88
 - College of Engineering Honors Program
- Relevant Coursework: Computer Networking; Scalable Internet Services; Database, Distributed, Embedded, Operating, and Runtime Systems

Skills

- Full Stack Development with React and Node.js
- Backend Web Development with Spring Boot
- Java, C/C++, and basic Python programming
- Experience working in and overseeing Agile / Scrum environments
- Proficiency with tools: Git, GitHub, Perforce, SQL, MongoDB, Cloud Services, CI/CD Systems, UNIX, Shell Scripting, VS Code, and Microsoft Office

Professional Experience

Software Development Engineer Intern, Alexa FCE / Timers - Amazon, Sunnyvale, CA Jun 2021 - Sep 2021

- Developed on-screen experience for new countdown timers feature using Alexa Presentation Language (APL), including creation, browse, and deletion views.
- Implemented backend categorization and rendering logic to support a celebratory experience for countdowns.

Software Development Engineer Intern, Alexa Email - Amazon, Santa Clara, CA Jun 2020 - Sep 2020

- Developed backend infrastructure for a new card on the home screen of Echo Show devices where users can be notified of new primary emails.
- Implemented a new dialog flow for first-time email customers to inform them of the full feature set of Alexa Email.
- Decreased average user-perceived latency for Alexa Email requests by 11% through parallelization of metrics services and refactoring of gateway API calls to be asynchronous.

Software Development Intern, Smart Speaker Platform - Sonos, Boston, MA Jun 2019 - Sep 2019

- Developed a new interface for playing content from an HTTP source using the clocking mechanisms for AirPlay 2, complete with support for metadata, radio stations, radio playlists, and more.
- Updated device cache and test environment interfaces to implement type safety and allow for automated CI testing.
- Collaborated in building of an internal Electron app for prototyping voice experiences using the Control API.

Academic Teaching Experience

Teaching Assistant, CMPSC 156 Jan 2022 - Present

Undergraduate Learning Assistant, CMPSC 56 / 156 Jan 2020 - Jun 2021

- Mentor and perform code reviews for 12 teams of students in CMPSC 56 / 156, a web application development course teaching legacy code development using React, Spring Boot, Git / GitHub, Agile workflows, and CI/CD testing.
- Groom and manage epics for three React / Spring Boot applications based on user testing and student feedback.

Teaching Assistant, ECE 150 / 251 Sep 2021 - Dec 2021

- Mentored students about Android application development in ECE 150 / 251, a project-based undergraduate and graduate engineering course about mobile embedded systems.
- Developed and maintained various demonstration applications and homework templates.
- Oversaw student project development, including initial idea pitches, weekly updates, and final presentations.

Undergraduate Lab Assistant, ECE 5 Jan 2019 - Mar 2021

- Mentored students about C++, Arduino, and circuit theory, in ECE 5, a project-based engineering course aimed at exposing freshmen to the techniques used to prototype and design basic circuits.
- Held weekly office hours and project help sessions for students to get assistance outside of lab hours.
- Organized the annual ECE 5 Science Fair, where students present their projects at the end of the quarter.

Undergraduate Learning Assistant, CMPSC 48 / 148 Apr 2020 - Jun 2020

- Mentored students about Agile, Node, React, and Test-Driven Development, in CMPSC 48 / 148, a team-based project development course aimed at exposing students to development practices used in industry.

Leadership Experience

Project Lead, Parkingbase (CE Senior Capstone Project) – UC Santa Barbara Sep 2020 – Jun 2021

- Created small, inexpensive wireless devices placed on individual parking spots that can detect the presence of a parked car, use low-power LoRa communication to communicate sensor data to the Internet, and allow users to view parking lot availability through a mobile website.
- Led full-stack development of the PWA web application and MongoDB backend infrastructure.

President, UCSB IEEE Student Branch – UC Santa Barbara May 2020 – Jun 2021

Internal Vice President, UCSB IEEE Student Branch May 2019 – Jun 2020

Publicity Chair and Webmaster, UCSB IEEE Student Branch May 2018 – Jun 2019

- Designed a new Jekyll-based website, complete with member database, resume book, and apparel store.
- Built a web application to manage IEEE lab occupancy, log member entries, and verify membership status.
- Managed scheduling of student projects, workshops, officer lab hours, and sales / inventory of organization's apparel.

Projects *(View my full list of projects at andrewhlu.com)*

Maple FS – Custom Linux filesystem built using FUSE for graduate operating systems course. Jan 2022

- Designed filesystem with triple-indirection (file sizes of 512 GB), inode bitmaps, and subset of POSIX system calls.
- Created and maintained Eucalyptus cloud VM provisioning scripts for filesystem testing and distribution.

Step to Jeff – Alexa Skill designed to facilitate the pre-onboarding experience for Amazon interns. Jul 2020

- Utilized Gmail API to extract onboarding information from Amazon emails and present them in voice-friendly format.
- Led team of five software developers and UI/UX designers to create PoC skill based on user research of interns.
- Designed prototype in Alexa Skills Hackathon and worked with Amazon's onboarding team to build production implementation.

DDR Pad – Bluetooth dance pad designed using STM32 to play "Dance Dance Revolution". Feb 2020

- Created using the STM32L476 development board, HC-05 for Bluetooth, and Python script for emulating keystrokes.
- Dance pad designed using plywood and polycarbonate; button pads designed using keyboard switches and springs.

Dodge the React – Dodge angry reacts spawned by outsiders by physically running in a VR world. Oct 2019

- Created using A-Frame (WebVR), CockroachDB SQL database, socket.io, and Express using HTML/CSS, JS, and Node.
- Utilized data changefeeds in conjunction with sockets to implement real-time gaming logic using an SQL database.

Type Type Revolution – Battle Royale typing contest to type the fastest while sabotaging other players. Feb 2019

- Server-less web application created using Firebase Realtime Database and written in HTML/CSS and JavaScript.
- Developed database structure, algorithm for counting words-per-minute, room system, and design for webpage.

Honors and Awards *(View the full list at andrewhlu.com)*

- **Outstanding Senior** – Awarded to the student with the highest GPA in the major / graduating class Jun 2021
- **Second Best Project, CE Capstone** – Awarded to "Parkingbase" Jun 2021
- **Dean's Honors Recipient, 11 Quarters** – Awarded to students with a GPA of 3.5 or higher Mar 2021
- **First Place Winner, Alexa Skills Hackathon for Interns** – Awarded to "Step to Jeff" Aug 2020
- **Ed Hass Scholarship** – Awarded to a UCSB junior in CE for strong academics and community service Apr 2020
- **Tau Beta Pi Member** – Initiated into the California Sigma chapter of the engineering honor society Jan 2020
- **Cockroach Labs API Prize Winner, Cal Hacks** – Awarded to "Dodge the React" Oct 2019
- **Best Game / Game Design Winner, SLO Hacks** – Awarded to "Type Type Revolution" Feb 2019