Bassem Halim

(818) 486-2166 | ✉ bassemhalim99@gmail.com | ↗ bassemhalim.github.io | 🔗 | ○

EDUCATION

University of California, Berkeley   Berkeley, CA

Bachelor of Science in Electrical Engineering and Computer Science (EECS)   *Dec. 2022*

- **Relevant Coursework:**

  Operating Systems (C, x86), Data Structures (Java), Machine Structures (C, RISC-V), Efficient Algorithms, Embedded Systems (C), Artificial Intelligence, Computer Security, Databases, Computer Vision

- **Cumulative GPA:** 3.54

EXPERIENCE

Software Developer Intern   Tustin, CA

Pi Variables   *May 2022 – Aug 2022*

- Contributed to the research and development of a decimeter-level accurate GPS receiver.
- Wrote a custom driver in both C and Python for the GPS module that uses UART for communication.
- Helped testing and debugging an IoT impact detection system.
- Improved an internal logging tool's efficiency by 30%, as measured by CPU utilization, by using interrupts for data retrieval instead of polling.

PROJECTS

Chatroom | *Go, Gin, PostgreSQL, Websockets, React, TS, Tailwindcss, Docker*   *Jun. 2023 - Jun. 2023*

- Created a full-stack chatroom app with a new message broadcasting using WebSockets.
- Implemented a scalable backend system with secure user authentication (JWT tokens) and efficient message storage and retrieval through a REST API.
- Developed a message upvote and downvote feature that can be safely scalled horizontally.

Real-Time Video Streaming Server | *Python, WebRTC, openCV, numpy*   *Jun. 2023 - Jun. 2023*

- Developed a web server to generate a dynamic video stream showcasing a bouncing ball animation.
- Established a secure WebRTC video stream to clients, utilizing TCP socket signaling.
- Used openCV to estimate the ball's position and transmit the estimates back to server through a data channel.

Cyclopath | *Java, Spring Boot, TS, React Native, Playwright, DynamoDB, S3*   *Mar. 2023 - May 2023*

- Developed a full-stack cycling workout app providing users with detailed workout information, including route, weather, distance, speed etc.
- Utilized AWS DynamoDB to store workout details and S3 to store the generated workout static map.
- Integrated Mapbox Maps API and a weather API for dynamic route visualization and workout insights.

End-to-End Encrypted File Sharing system | *Go*   *Mar. 2022 - May 2022*

- Designed an End-to-End encrypted file sharing system with a file share and revoke functionality
- Developed an algorithm to securely and efficiently store, load, and append to files.
- Used asymmetric encryption to share files securely using public key encryption and digital signatures.
- Added a revoke user functionality that prevents a revoked user and their children from reading future modification to the shared file.

PintOS | *C*   *Feb. 2022 - May 2022*

- Worked in a team of 4 to implement various functionalities in an educational OS for the x86 architecture.
- Implemented the functionalities to create threads, fork processes, and pass arguments to user programs and a MLFQ scheduler
- Improved the file system speed by adding a buffer cache.

LANGUAGES AND TECHNOLOGIES

- Java, Python, C, TS, SQL, Go, MongoDB, HTML, CSS, x86, RISC-V

- Git, Linux, NumPy, pandas, OpenMP, SIMD, Django, Spring Boot, React, Postman, WebRTC, Websockets, docker