Bassem Halim

(818) 486-2166 | bassemhalim99@gmail.com | bassem-halim | BassemHalim | Berkeley, CA

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

pi-lit — Tustin, CA

Software Developer Intern — *May 2022 – Aug 2022*

- Contributed to the research and development of a decimeter-level accurate GPS receiver.
- Wrote a custom driver for a GNSS module.
- Helped testing and debugging an IoT impact detection system.
- Improved an internal logging tool's efficiency by 60% as measured by CPU utilization.

Projects

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

- Used symmetric encryption to encrypt and decrypt the users' data and allow for multiple user sessions.
- 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.

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.
- Improved the file system speed by adding a buffer cache.
- Helped with the development of an MLFQ scheduler.

Digit Classifier | *Python, Artificial Intelligence* — *Apr. 2022 - Apr. 2022*

- Used machine learning to classify handwritten digits.
- Achieved an accuracy of 97% by designing and training a neural network that recognizes patterns in handwritten digits.

Maze Solving Robot | *C/Embedded-C, Socket Programming* — *Oct. 2021 -Dec. 2021*

- Designed and built the hardware of a differential-drive robot that uses a LiDAR to map its environment.
- Developed the software that collects the LiDAR scan data and sends it using UDP protocol to a server.
- Used a serial communication protocol (UART) to control a differential-drive robot.

2D World Exploration Game | *Java* — *Apr. 2021 - May 2021*

- Collaborated with a teammate to develop a random world generation engine, with a GUI, that generates a random 2D explorable world based on a string of numbers inputted by the user.
- An avatar is placed randomly in the generated world and the user can interact with the avatar using the keyboard.
- Implemented the ability to save and reload the game locally.

Gitlet | *Java* — *Feb. 2021 - Apr. 2021*

- Designed and implemented a local version control system with a command-line interface that can handle 15 commands similar to Git commands.
- Functionality includes add, commit, branch, checkout, merge, reset, log, merge, etc.
- Efficiently stored previous versions of the project, and the commit tree, locally using multiple data structures such as Hash tables, Hash sets, Linked Lists, etc.

Technical Skills

Languages: Java, Python, C/C++, SQL, Go, MongoDB, HTML, CSS, x86, RISC-V

Tools/libraries: Git, IntelliJ, Linux, Valgrind, GDB, NumPy, JUnit, CMake, OpenMP, SIMD, VIM.