Bassem Halim

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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 Variables — 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 30% as measured by CPU utilization.

Projects

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.

To Do List | *Python, Django, PostgreSQL* — *Mar. 2023 - Mar. 2023*

- Built a To-do service with a RESTful API that enables users to create, read, update, and delete tasks.
- Implemented user registration and authentication functionality to secure user data.
- Utilized PostgreSQL as the database for storing tasks and integrated Django's ORM to efficiently query and modify task data.

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.

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.

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*

- Developed a local version control system with a command-line interface capable of handling 15 Git-like commands, including add, commit, branch, checkout, merge, reset, log, and more.
- 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++, TS, SQL, Go, MongoDB, HTML, CSS, x86, RISC-V

Tools/libraries: Git, Linux, Valgrind, GDB, NumPy, OpenMP, SIMD, Django, Spring Boot, React Native, Postman.