Marwa Houalla mhoualla@umich.edu
http://www.mhoualla.com Washington DC-Baltimore Metropolitan Area

Education

- **University of Michigan** Ann Arbor, Michigan
  Honors Bachelor of Science in Computer Science; GPA: 3.9 *Sep 2020 - Dec 2023*
  Relevant Coursework: Advanced Operating Systems, Web Systems, UI/UX Design, Compiler Construction

Experience

- **Wayfair** Boston, MA
  Incoming Software Development Engineer Intern *June 2023 - Present*
- **University of Michigan EECS** Ann Arbor, MI
  Teaching Assistant for Data Structures & Algorithms *Dec 2021 - Present*
  - Help professors teach 900+ students per semester algorithm analysis, O-notation, fundamental data structures (stacks, queues, deques and hash tables), and algorithm techniques (dynamic programming, greedy, recursive, divide-and-conquer, branch-and-bound, and backtracking).
  - Lead a weekly lab section, ideate and write exam questions, answer conceptual questions on Piazza.
  - Hold weekly office hours for debugging and optimizing projects containing more than 1000 lines of code.

  Grader for Introduction to Computer Architecture *Sep 2022 - Present*
  - Grade assignments and exams on computer organization topics, such as caches, virtual memory, multi- and single-cycle datapaths, pipelining, and information set architecture.
- **T. Rowe Price** New York, NY
  Software Engineer Intern *June 2022 - Sep 2022*
  - Built Grafana dashboards with proper metrics using Prometheus, Telegraf, Splunk, and Cloudwatch for the Enterprise HashiCorp Vault application.
  - Implemented an alerting system with Alertmanager to proactively be notified of Vault incidents.
  - Integrated Sourcegraph code intelligence into the Gitlab UI using Docker.
  - Collected firmwide VDI information using Prometheus and broke it out by geolocation to better understand update and consumption patterns.
- **Ford School of Public Policy** Ann Arbor, MI
  Researcher *Sep 2020 - Present*
  - Experimental research on hiring discrimination under the supervision of Professor Fabiana Silva.
  - Assist in designing and testing experimental stimuli, edit manuscripts, code MTurk survey responses, and conduct several literature reviews.

Projects

- **Thread Library (C++17):** Implemented sophisticated Thread Library to handle the creation, execution, and lifespan of multiple thread bodies on a multi-core architecture, equipped with advanced functionalities such as conditional variables, mutexes, generic threads, inner process interrupt capabilities, and thread lifetime management operations including yield and join.
- **Virtual Memory Manager (C++17):** Designed and implemented virtual memory manager that supports file- and swap-backed pages, maintaining processes' address spaces via the pager interface, enabling syscalls, forking of child processes with non-empty virtual arena, and creating customizable memory sizes with a clock queue to control eviction orders and enable bits for read, write permissions and physical page residency.
- **LinkedIn Data Scraper and Classification Tool (Python 3):** Created suite of scripts to extract recommendation data from LinkedIn profiles, facilitating in-depth textual analysis of the collected data using a Naive Bayes classifier and the Scikit-learn Python framework. Analyzed gender-associated words as part of an Honors Thesis, achieving the highest ranking for this project.
- **Network Fileserver (C++17)** Designed and implemented a multi-threaded network file server with fine-grained locking, socket programming, client-server systems, and network protocols.

Skills

Languages: C++, C, Rust, Python, Javascript, HTML, CSS, GDB
Technologies: AWS, React, Grafana, Figma
OS: Arch Linux, MacOS, Windows