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Education

B.S. Computer engineering
University of Guadalajara

Began in **January - 2021**
Expected Graduation **December - 2025**

- **GPA:** 90/100
- **Notable Courses:** Data Structures, Algorithms, Database, Statistics and Numerical Analysis, Compiler and Traslation, Theory of Computation, Computer networks, Computer Architecture

Work Experience

SW Test Engineer Intern - Toshiba Global Commerce Solutions

- **Jul 2024 - Present**
- Develop and maintain automated test scripts using **Cypress**, **Selenium** with **Java** for web applications.
- Implement **Behavior-Driven Development (BDD)** methodologies with **Cucumber** to define and execute test scenarios, integrated with **Allure** for reporting.
- Collaborate with cross-functional teams to gather and understand requirements for effective test case design.
- Perform continuous integration and continuous deployment **(CI/CD)** tasks to ensure the automated test suite is integrated into the development **Jenkins** pipeline.

Projects

Complex Neural Networks Framework From Scratch:

- Jul, 2023
- Ongoing **CMake** project exploring the utilization of weighted complex numbers in real-valued **neural network models** for potential **cost-effectiveness and accuracy** improvements.
- Developed with **optimized matrix operations** and activation functions for enhanced performance. Compared with numpy's array matrix multiplication and GNU Scientific Library, **the implementation is slightly faster**. My estimation, based on testing with a six-core processor, suggests an improvement ranging from approximately **37.841% to 41.557%**.
- Implemented in pure **C/C++**, leveraging **OMP** for parallelize several for loops and **SIMD** instructions for processor optimization. Unit tested using the **Google testing framework**.

Unit Testing Framework for C in Linux:

- May, 2023
- Pure **C** project designed to simplify and streamline testing of **C** projects on **Linux**, inspired by Python's unit testing library and Google Test.
- Offers more than 20 methods for **assertions and non-fatal assertions**, streamlining the process of creating isolated test cases. Additionally, includes automatic recompilation of test files for improved efficiency.
- Developed entirely in **C** with a **Makefile** for seamless build automation.

Memory Allocator in C:

- Developed **mem-c**, a custom memory allocator in C using a binary heap data structure.
- Achieved efficient memory block search with **O(log n)** worst-case time complexity.
- Integrated Linux `mmap` syscall for dynamic memory allocation.
- Implemented support for memory pagination and adjacent chunk merging.
- Designed with future enhancements in mind, including garbage collection and arenas.

Technical Skills

- **Back-End:** Python, C/C++, Java, Rust, Clisp, Flask and Django.
- **Front-End:** JavaScript, HTML, CSS, BootStrap, ReactJs and Tkinter.
- **DataBase:** MySql, MariaDB, PostgreSQL, SqlServer and FireBase.
- **Developer Tools:** Git, Emacs, Linux environment, CMake and Makefile.
- **Languages:** Spanish(Native), English(Basic).

Extracurriculars

- **Clubs:** "Club de Algoritmia CUCEI" (Algorithms club).
- **Awards or Honors:** Acknowledged for exceptional contributions as part of the **"Eureka"** team, representing the **University of Guadalajara CUCEI**, at the **18th National Programming Contest** in October 2023.