Alejandra J. Perea Rojas

aperearojas@college.harvard.edu · alejandraprj.com

EDUCATION

HARVARD UNIVERSITY — Cambridge, MA
A.B. Candidate in Computer Science; Secondary in Physics. — May 2024
Relevant coursework: Abstraction and Design in Computation, Systems Programming and Machine Organization, Introduction to Algorithms, Electromagnetism, Applied Linear Algebra and Big Data, Mechanics, and Artificial Intelligence.

RECENT EXPERIENCE

TEAMCORE PAWS — Cambridge, MA
Software Engineer — Jun 2022-Dec 2022
- Improved error handling for the PAWS SMART API by programming an interface and framework that will help speed up the set up of the API's local deployment. Familiarized myself with QGIS to craft of a large set of testing data in Python.
- Developed the interface with Python to handle a suite of requests in JSON scripts and wrote a document to procedures.

WILDLIFE CONSERVATION SOCIETY — Remote / NYC
Drones and Sensors Intern — May-Aug 2022
- Built an article processing program with Python and crafted a set of SQL queries to help develop an online database.
- Researched and drafted a white-paper to review state-of-the-art AI-based video processing and conservation-related tools.

C MINDS — Remote / MX
Remote Summer Program at DRCLAS — Apr-Aug 2021
- Helped install an AI Living Lab in Yucatan and establish a Diabetic Retinopathy AI-based Screening Program in Jalisco.

RECENT PROJECTS

COMPSCI 182 - SUDOKU SOLVER and GHOST AI — Oct-Dec 2022
- Developed a Sudoku Solver using forward checking and MRV heuristics as a CSP.
- Implemented a Ghost AI with Minimax Agents and Alpha Beta Agents with alpha-beta pruning.

COMPSCI 51 - MINIML — May 2022
- Built an OCaml interpreter with various features, including unary and binary types, operators, conditionals, and higher-order and recursive functions, using the substitution and dynamic scoped environment models.

COMPSCI 61 - COMMAND SHELL and WEENSYOS — Oct-Dec 2021
- Implemented a WeensyOS kernel with features such as kernel isolation, process isolation, virtual page allocation, forking, shared memory, and overlapping virtual memory address spaces, as well as an exiting function.
- Developed a shell in C++ with foreground and background commands (including the cd command), command lists, conditionals, pipelines, redirections, and the interrupt signal, while handling zombie processes.

SKILLS

Programming: Proficient in C++, Python, OCaml, and Java.
Development: Experienced in HTML/CSS, JavaScript, PHP, React, and Flask.
Environments: Familiar with Azure, AWS, and Docker.
Data: Skilled in working with JSON, YAML, and SQL.
Language: Fluent in Spanish (native), intermediate in Mandarin Chinese, and beginner in Japanese.

RECENT ACTIVITIES

HARVARD SEAS — Cambridge, MA
Systems Programming Course Assistant — Sep-Dec 2022
- Facilitated college-level course of about 200 students by holding office hours and review sections weekly.
- Covered data memory and representation, assembly, kernel, caching, shell, and process synchronization using C++.

WOMEN IN COMPUTER SCIENCE — Cambridge, MA
DIB Advocacy Director — Aug-Dec 2022
- Led initiatives to promote diversity and inclusion. Organized events to provide more resources to underrepresented groups.