Alejandra J. Perea Rojas

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Education

Harvard University Cambridge, MA
- Bachelor of Arts in Computer Science; Secondary in Physics. Anticipated: May 2024
- Relevant coursework: Algorithms, Systems Programming and Machine Organization, Abstraction and Design in Computation, Applied Linear Algebra, Probability, Electromagnetism, Mechanics, and Artificial Intelligence.

Experience

Software Engineer
TEAMCORE AT HARVARD Jun-Dec 2022, Cambridge, MA
- Revamped error handling for the PAWS SMART API by programming a Python interface that expedited testing requests.
- Crafted 15 artificial parks in QGIS and Python to verify ML predictions. The interface would handle the artificial data with HTTP requests. Outlined the program with greater detail in the API's deployment guide.

Sensors Intern
WILDLIFE CONSERVATION SOCIETY May-Aug 2022, Remote / NY
- Developed about 100 queries in SQL to then build an article processing interface with Python to deploy a virtual library.
- Researched and drafted an 8-page white-paper to review state-of-the-art AI video processing and conservation tools.

AI Intern
C MINDS THROUGH DRCLAS Apr-Aug 2021, Remote / MX
- Expedited three research briefings to assist in the set-up of a Diabetic Retinopathy AI-based Screening Program in Jalisco.
- Assisted in the installing of a Living Lab in Yucatan with the finalization of three AI-based conservation projects.

Activities

Systems Course Assistant
HARVARD SEAS Sep-Dec 2022, Cambridge, MA
- Facilitated a Systems course of about 200 students by holding office hours and a section of about 25 students weekly.
- Covered 6 topics using C++: data memory and representation, assembly, kernel, caching, shell, and synchronization.

DIB Advocacy Director
WOMEN IN COMPUTER SCIENCE Aug-Dec 2022, Cambridge, MA
- Oversaw and collaborated with 8 members on initiatives to promote diversity and inclusion and organized events to provide more resources to underrepresented groups.

Projects

COMPSCI 182 - SUDOKU SOLVER and GHOST AI Oct-Dec 2022
- Created a Sudoku Solver using forward checking and MRV heuristics as a computer satisfaction problem.
- Developed 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 - KERNEL and SHELL Oct-Dec 2021
- Implemented a kernel, called WeensyOS, 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.
- Created a Bash 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 (3+ years) in Python and C++. Experienced (1+ years) with Go, OCaml, Java, and SQL.
Development: Proficient (3+ years) in HTML/CSS. Experienced (1+ years) with PHP, JavaScript, React, and Flask.
Environments: Skilled with Linux, x86 Assembly, Azure, AWS, Docker, and MATLAB.
Language: Fluent in Spanish (native), intermediate in Mandarin Chinese, and elementary in Japanese.