André Guillermo Raymundo Rodríguez

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EDUCATION

UNIVERSIDAD PANAMERICANA

Artificial Intelligence Engineering Student

August 2022 - June 2026 | Aguascalientes, México.

- Cumulative GPA: 3.92/4.0

SKILLS

Coding

C • C++ • Python • Java • SQL • HTML • CSS

Languages

Fluent
Spanish • English

COURSEWORK

Data Structures & Algorithms • Object Oriented Programming • Advanced Programming • Intelligent Agents • Introduction to Databases • Operating Systems • Microcontrollers • Linear Algebra • Calculus • Discrete Mathematics

EXPERIENCE

- Data Structures
- Algorithms
- Object Oriented Programming
- Supervised Learning
- Web Programming
- Databases
- Solving LeetCode problems

PERSONAL ROJECTS

- **File Compressor**

Description: Designed a file compression and decompression application in Python that supports text (txt), image (BMP, PNG, JPG), audio (WAV, MP3), and video (MOV) files.

Implementation details: Huffman coding algorithm to generate optimal binary trees for compression, ensuring minimal file sizes and preserving data integrity. Key components include bit-level manipulation, priority queues for tree construction, and user-friendly GUI for file selection and operation execution.

Impact: Demonstrates advanced skills in data structures, algorithms, file handling, and GUI development.

- **Rubik's Cube Solver**

Description: Developed an informed search approach to solve the Rubik's Cube, focusing on minimizing moves while ensuring optimal solutions.

Implementation details: Best-First Search (BFS), A* and A* with bit representation of the Rubik's Cube. Implements several heuristics in each algorithm. Employs bit manipulation for efficient extraction and comparison of piece positions and colors.

Impact: Highlights skills in data structures and bit manipulation. Contributes to algorithmic problem-solving.

- **Quixo Bot**

Description: Implemented a strategic AI for decision-making during the turn of the player for the game Quixo using a heuristic-based approach.

Implementation details: Best-First Search (BFS) algorithm using heuristics to evaluate both player and opponent moves, prioritizing moves through a priority queue. This approach aims to block the opponent while advancing the player's position, maximizing strategic advantage and minimizing risks.

Impact: The impact lies in the development of an AI in games. Demonstrates skills using advanced heuristics and search algorithms.

- **Skin Cancer Classifier with Supervised Learning**

Description: Developed and trained a machine learning model to evaluate its performance in accurately identifying and classifying skin cancer types based on the skin cancer HAM10000 dataset.

Implementation details: K-Nearest Neighbors (KNN) including RGB histogram extraction and Principal Component Analysis (PCA), and the pre-trained model ResNet50 Convolutional Neuronal Network (CNN).

Impact: Knowledge acquisition in machine learning, specifically supervised learning.

- **Ping-Pong & Hockey with Microcontroller STM32F401RE**

Description: Developed interactive ping-pong and hockey games in C, applying collision logic and real-time event detection for precise handling of the motion and response of game elements.

Implementation details: Integrates two joysticks, two 8x8 LED matrices and the STM32F401RE microcontroller, using C programming oriented to bit manipulation.

Impact: Demonstrates skill in controlling complex scenarios, advanced C programming, and bit manipulation techniques.