Miguel Castillo

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EDUCATION

Rutgers University-New Brunswick, NJ **Graduated May 2024**

Bachelor of Computer Science

- **Skills**: Python, C++, JavaScript, Java, C#, HTML, React, JDBC, Z Shell, Django, R, Tailwind, SQL, Data Analysis, MS SQL, Command Prompt, Matplotlib
- **Languages**: English (Fluent), Spanish (Fluent)
- **Relevant Coursework**: Data Structures (210), Intro to Artificial Intelligence (440), Design and Analysis of Computer Algorithms (344), Principles of Information and Data Management (336), Data Management for Data Science (210)
- **Honors**: Educational Opportunity Fund (EOF) Scholar

PROJECTS

Flight Travel Reservation System | *Java, HTML, CSS, SQL, JSP, XML, Rest APIs, Git* **October 2023**

Rutgers CS 336- Fall 2023

- Developed a full-stack flight reservation platform using Java Servlets (JSP) and MySQL, integrating frontend and backend via RESTful APIs for user authentication, flight search, and booking management.
- Conceptualized and crafted an Entity-Relationship (ER) diagram for an insightful database structure, honing data modeling proficiency, secure data validation and session-based authentication.
- Executed SQL schemas and fortified integrity constraints, ensuring precision and reliability of data. Employed Java, HTML, SQL, and CSS to establish seamless connectivity between the user interface and the database.
- Collaborated effectively within a dynamic four-member team, showcasing exceptional teamwork and project management.

Grid World Pathfinding Algorithms | *Python, NumPy, Pandas, Matplotlib* **May 2024**

Rutgers CS 440- Spring 2024

- Conducted comprehensive analyses of pathfinding algorithms, including Repeated Forward A* and Adaptive A*, exploring the impact of heuristic consistency and tie-breaking strategies on runtime and cell expansions.
- Proved theoretical guarantees of agent reachability and finite-time completion in grid worlds using mathematical arguments and conducted statistical hypothesis tests to confirm performance differences between algorithms.
- Leveraged advanced concepts like Manhattan distance consistency and adaptive heuristics to enhance search efficiency while rigorously evaluating performance through detailed experimentation and visualization.

REST-Based React 3D Pokédex Visualizer | *JavaScript, React, Rest APIs, Three JS, Tailwind CSS* **June 2024**

Summer 2024

- Developed an interactive Pokédex web application using React (JSX), Three.js, and the Pokémon API, integrating dynamic 3D visualizations for an engaging user experience.
- Optimized application performance by implementing efficient state management and leveraging asynchronous data fetching to ensure seamless user interactions.

Live Interactive Personal Website | *JavaScript, Python, React, Rest APIs, Three JS, Tailwind CSS, Django* **Present**

Present

- NumPy Image Processor: Interactive tool for live image manipulation using NumPy and PIL, demonstrating applied data science and computer vision concepts. Integrated dynamic project data and media via Django APIs, enabling seamless content updates and modular component rendering.
- Perceptron & Two Layer Neural Network: Facial recognition and digit classification, achieving over 90% accuracy improvement through optimized data preprocessing and iterative learning.

WORK EXPERIENCE

Frontend Software Engineer Intern | *TypeScript, Next.JS, React, Tailwind CSS* **February 2025 – May 2025**

UpUnikSelf

- Designed and implemented dynamic, responsive web interfaces using Next.js, TypeScript, and tailwind CSS for an innovative e -commerce platform focused on low transactions fees and business growth.

Triple Five Group **June 2019 – January 2020**

American Dream Nickelodeon Ride Operator

- Proficient in utilizing microphones to convey instructions and address guest concerns. Demonstrated ability to positively interact with guests both verbally and non-verbally, ensuring an outstanding experience.