Carlos D. Martinez

carlos_10david@hotmail.com | www.linkedin.com/in/carlos-d-martinez-6bb753363 | 760-556-6747

Education

San Diego State University
San Diego, CA
Aug 2023 - May 2025

B.S. Computer Science
Associate's in Psychology

- Relevant Coursework: Software Engineering, Operating Systems, Artificial intelligence, Database Theory and implementation, Robotics

CBTIS 21
Mexicali, B.C. Mexico
Aug 2013 - May 2016

Associate's in Electronics

- Academic Tutor for Electronic Classes (Digital Design, Microcontrollers, Electrical Circuits)

Work Experience

Nexplore
San Diego, CA
Mar 2025 - Current

STEM Instructor

- Teach hands-on classes in 3D printing, drone building and piloting, pottery, bridge engineering with popsicle sticks, and more programs.
- Instruct students ranging from elementary to middle school across multiple campuses
- Collaborate with schools and internal curriculum teams to deliver enriching, multidisciplinary STEM content.

The Coder School
Encinitas, CA
Sep 2024 - Mar 2025

Coding Coach

- Taught kids aged 7–18 how to program games and interactive projects using Scratch, Python, and Roblox Studio.
- Delivered personalized instruction based on student skill levels, from complete beginners to intermediate coders.
- Build strong rapport with students and parents while tracking individual learning progress.

Sunny Days
Imperial, CA
Sep 2021 - Jun 2024

Behavior Technician

- Delivered Applied Behavior Analysis (ABA) therapy to children with autism spectrum disorder in home and school settings
- Supported individual behavior plans by implementing positive reinforcement strategies and data-driven interventions
- Tracked client progress and communicated results with Board Certified Behavior Analysts (BCBAs) and caregivers

Projects & Technical Experience

San Diego State University: Unix/Linux System Administration Internship

- Built and deployed a full virtualized infrastructure for a mock company using multiple Linux distributions (Ubuntu, OpenBSD, Rocky Linux, FreeBSD)
- Configured dedicated virtual machines for DNS (BIND9), mail (Sendmail/ Dovecot), web hosting (NGINX), and centralized configuration using Ansible
- Enabled network-wide access via NFS file sharing and DNS integration
- Configured SSH login for admin access and integrated LDAP users across all virtual machines
- Designed the network so each service was independently managed yet securely connected as part of the company's infrastructure

CS 556: Robotics Labs

- Programmed a Pololu 3pi+ robot in Arduino C++ using PD controllers and PID controllers, Odometry, and Sensors
- Designed a Finite State Automaton (FSA) to switch robot behavior based on sonar and encoder feedback
- Implemented Particle Filter Localization, combining odometry and sensor input to track position on a grid
- Tuned controller parameters through experimentation and real-time debugging to ensure consistent behavior in dynamic environments

Unity RPG Game Project

- Designed and developed a 2D RPG game in Unity using C#, implementing player movement, knockback effects, shader-based visual feedback, and enemy AI
- Integrated keyboard and controller inputs, and developed sprite animation systems for characters and objects
- Managed a collaborative GitHub project using version control to coordinate team development and feature integration
- Debugged networked player logic, animation syncing, and gameplay responsiveness while incorporating screen shake and visual polish

Skills

- **Languages:** Python, C#, Java, SQL, C ++, Haskell, Bash, Assembly, Pandas, HTML, CSS

- **Tools & Technologies:** Docker, Linux (OpenBSD, Ubuntu, Rocky Linux), OpenLDAP, OpenSSL, Git, Arduino IDE,Unity, GitHub, Scikit-learn, Microcontrollers (PIC), circuit debugging (oscilloscopes, multimeters), analog/digital components (logic gates, SCRs, op-amps), PLCs

- **Web Development:**
   HTML, CSS, JavaScript, Dockerized web apps, custom NGINX setup, GitHub Pages, domain configuration UI/UX collaboration

- **Embedded Systems & Microcontrollers:**
   PIC Microcontrollers (16F series), Arduino IDE, Relay circuits, analog/digital I/O, SCRs, AC/DC control, real-time debugging with multimeters/oscilloscopes, temperature/light sensors, circuit prototyping and soldering

- **Operating Systems & SysAdmin:**
   Unix/Linux admin (Ubuntu, OpenBSD, FreeBSD), custom kernel compilation, BIND9 DNS setup, OpenLDAP & OpenSSL integration, Sendmail/Dovecot configuration, NFS and CUPS servers, Docker & NGINX deployment, Ansible scripting.

- **Machine Learning & Data Science:**
  Data cleaning & preprocessing, feature engineering, regression & classification models (Linear, Random Forest, Deep Forest, KNN), scikit-learn, time-series analysis, accuracy evaluation, pandas, matplotlib.

- **Game Development:**
  Unity (2D), C# scripting, player movement & knockback physics, sprite animation, enemy AI, animation controllers, particle effects, screen shake for feedback, multiplayer input logic, GitHub version control

Bonus Projects

Pacman AI Agent – Search Algorithms for Navigation

- Developed an intelligent Pacman agent using Python to traverse a maze while avoiding obstacles based on weighted paths.
- Implemented and compared various search algorithms (DFS, BFS, A*, UCS) to determine the most efficient route.
- Focused on path optimization and dynamic response to environmental hazards.

Smart Home Automation System – PIC Microcontroller Project

- Designed and implemented a smart home system using a PIC microcontroller, integrating both AC and DC control.
- Utilized photo sensors, optical sensors, relays, fuses, and SCRs to control lighting, temperature, and motion detection.
- Created a reliable multi-sensor interface for home automation with analog and digital components.

Data Science Research Project – House Price Prediction

- Used regression models including Linear Regression, Random Forest, and Deep Forest for price prediction.
- Created and presented graphs from machine learning experiments, tailoring visualizations to best support each project's conclusions and communicating insights clearly to peers
- Collected and cleaned multi-state housing datasets, applied normalization, and engineered features to improve accuracy.

Machine Learning Research – Future Tech Skills Forecasting

- Analyzed job market data to predict trends in technical skills using ML models.
- Preprocessed and normalized time-series and categorical data, applied regression models to forecast skill relevance.
- Plotted and interpreted data results using Python; selected optimal visualizations to highlight key trends and explained findings to a class audience

RF System – Transmitter and Receiver Radio

- Designed and built a working FM/AM radio system using discrete analog components
- Soldered components (capacitors, inductors, resistors, potentiometers) onto a copper plaque to create both the transmitter and receiver circuits.
- Applied principles of analog signal amplification, frequency modulation, and wave propagation.

Mobile/Desktop Website – InvictusSoccerAcademy.com

- Designed and built a responsive website for a youth soccer academy using HTML, CSS and JavaScript
- Collaborated with the client to ensure content accuracy and visual branding
- Optimized the site for both desktop and mobile devices to improve user experience across platforms