

# Carlos D. Martinez

carlos\_10david@hotmail.com | [www.linkedin.com/in/carlos-d-martinez-6bb753363](https://www.linkedin.com/in/carlos-d-martinez-6bb753363) | 760-556-6747

## Education

---

### San Diego State University

B.S. Computer Science  
Associate's in Psychology

San Diego, CA  
Aug 2023 - May 2025

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

### CBTIS 21

Associate's in Electronics

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

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

## Leadership & Work Experience

---

### Nexplore

STEM & ART Instructor

Enter Location  
Mar 2025 - Current

- 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

Coding Coach

Encinitas, CA  
Sep 2024 - Mar 2025

- 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

Behavior Technician

Encinitas, CA  
Sep 2024 - Mar 2025

- 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

- Installed and configured multiple Unix-based operating systems: OpenBSD, FreeBSD, Rocky Linux, Ubuntu,
- Set up a DNS server with BIND9, a Certificate Authority using OpenSSL, and LDAP authentication across lab VMs
- Deployed secure mail (Sendmail/Dovecot), file (NFS), and print (CUPS) servers in virtualized environments
- Compiled and deployed a custom Linux kernel, containerized web services with Docker and NGINX, and used Ansible for automation

## 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 ( Work in progress..)

- 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
- **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

## 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 (*Incomplete*)**

- Collected and cleaned multi-state housing datasets, applied normalization, and engineered features to improve accuracy.
- Used regression models including Linear Regression, Random Forest, and Deep Forest for price prediction.
- Focused on identifying key pricing indicators across states using scikit-learn and pandas.

### **Machine Learning Research – Future Tech Skills Forecasting (*Incomplete*)**

- 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.
- Explored model performance using accuracy metrics and visualization tools for trend interpretation.

### **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.