Cristian Robles, Computer Engineering Graduate

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EDUCATION

Aug 2018 — Dec 2023

B.S. Computer Engineering, Cal State Northridge

COURSES

Robotics and Embedded Systems, FPGA Design, Computer Architecture, Linear Systems, Digital Systems, Digital Electronics, Microprocessor Systems, System on Chip Design, Probability, Data Structures, Differential Equations, Linear Algebra

SKILLS

C, C++, Assembly, SPI, I2C, UART, RTOS, FPGA, VHDL, ROS, NASA F', Linux, Git, GitHub, Matlab, Simulink, Vivado, Visual Studio, Solidworks CAD, 3D Printing, OrCAD PSpice, HTML, CSS, Leadership, Teamwork, Fluent in Spanish

PROJECTS

TI-RSLK Robot Control

- Developed and fine-tuned a PID control algorithm using the TI RSLK robot and MATLAB, optimizing motor movement and navigation performance.
- Integrated PWM motor control and encoder feedback within the embedded system using Simulink to tune the control system for speed regulation and real-time position tracking for autonomous operation.

DRAM & SRAM OrCAD Simulation

- Designed SRAM and DRAM using OrCAD PSpice, showcasing proficiency in widely-used electrical engineering simulation and design software.
- Conducted a comparative analysis in simulation, demonstrating expertise in semiconductor device characterization and analysis.

EXTRACURRICULAR ACTIVITIES

Aug 2019 — May 2023

Team Lead, CSUN Vex Robotics — Northridge

- Engineered C++ code for self-navigating robots, integrating algorithms including PID control, pure pursuit path tracking, and odometry for spatial awareness.
- Modeled and manufactured multiple mechanical subsystems for competition robots.
- Managed project timelines across multiple competition seasons, ensuring readiness for events.
- Instructed individuals of diverse skill levels in both mechanical and programming aspects of VEX robotics.

Aug 2021 — May 2022

President, CSUN Vex Robotics — Northridge

- Successfully managed the club during the transition period as school resumed in-person activities following the COVID lockdown.
- Acted as the team representative in school budget meetings, effectively communicating the team's needs and advocating for necessary resources resulting in a funding increase for robotics supplies.

Jan 2023 — Dec 2023

Systems Subteam Member, CleanBot 3000 (Senior Project) — Northridge

- Employed ROS2 for automation of a sanitization robot for NASA's Jet Propulsion Laboratory's clean rooms, integrating technologies like SLAM, serial communication, PID control, and path planning.
- Collaborated on building a network using a Raspberry Pi and an Ubuntu Server Linux distribution for robotic control in ROS2.
- Leveraged diagnostic tools including a logic analyzer, oscilloscope, and multimeter to troubleshoot and refine various electronic components, reducing operational downtime.