

Dominic Castaneda

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Education

Oakland University | Oakland County, MI | Senior

Expected Graduation: May 2027

Bachelor of Science in Mechatronics and Robotics Engineering | Minor in Computer Science

M-TEC | Controls Technician Certification

April – August 2024

- **Key Training:** OSHA 10-Safety, Electric Vehicles Fundamentals and Safety, Motor Controls and Drives, Digital Electronics, Electronic Sensors, FANUC Robotics Operations, PLC Programming (Basic – Advanced), Allen Bradley HMI Programming, VFD Programming and Troubleshooting-VFD Power Flex, RFID-Radio Frequency Identification.

Work Experience

Schaeffler Group | *Chassis R&D Co-op - Controls & Mechatronics* | Troy, MI | September 2025 – December 2025

- **Performed component-level testing** on an actuator locking mechanism by building the test bench, developing the test plan, and creating the software in MATLAB/Simulink to simulate vehicle load and wear over 10,000 cycles in automation.
- **Conducted data analysis on durability test results** to identify failure modes and mechanical performance trends, providing insights for design improvements, component reliability optimization, and application software advancements.

BorgWarner | *Test Engineer Intern* | Auburn Hills, MI | June 2025 – September 2025

- **Built a custom portable data acquisition** system from the ground up using NI CompactDAQ and LabVIEW, enabling real-time measurement of PWM signals, frequency, duty cycle, and diagnostics for eMotors.
- **Built a 12-channel motor speed display** using an ESP32 and LED display, providing engineers with real-time RPM verification before durability tests.

Projects

Weather App

React Native | Supabase | OpenWeather API

- Built a cross-platform weather app featuring real-time updates, 10-day forecasts, and saved cities.
- Implemented auto-refresh logic, cloud database integration, and live search functionality using APIs.

Automatic Card Shuffler

Arduino Uno | C++ | Fusion 360 CAD

- Designed and built an automatic card shuffler using an ESP32 board to control two motors and custom 3D-printed housing.

Toy Claw Machine with PLC Control

Allen Bradley PLC | RsLogix 5000

- Programmed manual and automated pick-and-place operations for a retrofitted toy claw machine using ladder logic.
- Integrated limit switches, motor control, and solenoid actuation to simulate industrial robotic behavior.

Personal Portfolio Website

HTML | CSS | JavaScript

- Designed a clean portfolio website showcasing projects with a filtering system and project links.

Casino Simulation Game (Prototype)

Unity | C# | 3D Game Development

- Developed a 3D multiplayer casino environment in Unity, featuring player movement, slot machine logic, and interactive blackjack tables.

Technical Skills

- **Programming:** MATLAB, Simulink, LabView, Arduino, C++, Ladder Logic, HTML, CSS, JavaScript, JSX
- **Development Tools:** Fusion 360, VS Code, Visual Studio, Git, GitHub Desktop, Unity
- **Systems & Platforms:** Windows, Linux, macOS, Virtual Machines, Microsoft Word, Excel, PowerPoint, Teams
- **Industrial & Automation:** RsLogix 5000, Studio 5000, FactoryTalk, Allen Bradley, Siemens, VFDs, HMI

Certifications

- **Controls Technician** | Aug 2024
- **SACA Certified Ethernet Communications 1** | July 2024 | Cert No. KX3S8D
- **SACA Certified Variable Frequency Drive Systems 1** | July 2024 | Cert No. 6VPD5J
- **SACA Certified Pneumatic Systems 1** | June 2024 | Cert No. J5H3S9
- **SACA Certified Programmable Controller Troubleshooting 1** | Aug 2024 | Cert No. F2DT56