

# Emilio Nguyen

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## SUMMARY

Electrical engineering student pursuing hands-on automation work supporting reliable material handling systems and operational performance. Academic research and supervised laboratory projects cover **PLC/PC controllers**, **industrial networks**, SCADA, HMI, conveyors, sortation, scanners, cameras, label systems, sensors, motor controls, **servo drives**, **frequency drives**, and electrical distribution. Built and tested simulated fulfillment workflows, investigated faults through controller logs and network diagnostics, and translated observations into clear technical documentation. Experience includes performance monitoring, standard work, root-cause analysis, structured troubleshooting, acceptance testing, and continuous-improvement proposals. Collaborated with faculty, student researchers, project teammates, and manufacturing guests through demonstrations and shift-style handoffs. Ready to contribute safely during a ten-week summer 2027 assignment, support flexible operations schedules, and help improve equipment reliability, order speed, and accuracy.

## EDUCATION

### Bachelor's Degree in Electrical Engineering

2028

Carolina State University GPA: 4.0

Raleigh, NC

***Coursework:** Programmable logic controllers, industrial automation, electrical systems, sensors, controls*

### Associate Degree in Applied Science in Automation Systems Technology

2025

Wake Technical Community College GPA: 4.0

Raleigh, NC

***Coursework:** PLC programming, industrial networking, motor controls, electrical distribution*

## TECHNICAL SKILLS

- **PLC Platforms:** PLC controllers, PC controllers, programmable logic controllers
- **Industrial Networks:** Ethernet, ControlNet, DeviceNet
- **Fieldbus Systems:** Profibus, DeviceNet, Ethernet
- **Material Handling:** Conveyors, sortation systems, MHE
- **Inspection Systems:** Barcode scanners, cameras, photoelectric sensors
- **Label Systems:** Label systems, barcode labels, scanner alignment
- **Drive Systems:** Servo drives, frequency drives, motor starters
- **Controls Visualization:** SCADA, HMI, dashboards
- **Electrical Systems:** Electrical distribution, emergency-stop circuits, multimeters
- **Quality Methods:** Root-cause analysis, acceptance testing, fault analysis
- **Operational Methods:** Standard work, continuous improvement, shift handoffs
- **Documentation Tools:** Microsoft Excel, AutoCAD Electrical, technical reports

## SKILLS

- |                       |                     |                           |                           |
|-----------------------|---------------------|---------------------------|---------------------------|
| • PLC/PC Controllers  | • Conveyor Systems  | • Servo Drives            | • Standard Work           |
| • Industrial Networks | • Sortation Systems | • Frequency Drives        | • Continuous Improvement  |
| • SCADA               | • MHE Metrics       | • Electrical Distribution | • Technical Documentation |
| • HMI                 | • Motor Control     | • Root-Cause Analysis     |                           |

## EXPERIENCE

### Automation Engineering Student Research Assistant

September 2025 - Present

Carolina State University Automation Lab

Raleigh, NC

Support supervised automation research through conveyor and sortation test cells, controls diagnostics, SCADA reporting, standard work, and faculty-facing continuous-improvement recommendations.

- Configured conveyor cells with **PLC** controllers, **scanners**, sensors, and motor starters for fulfillment flow simulations.
- Traced stoppages through **Ethernet** and **DeviceNet** logs, isolating wiring, timing, and addressing faults.
- Built **SCADA** dashboards tracking throughput, accumulation, fault codes, and restart duration after test runs.
- Documented startup, shutdown, inspection, and escalation steps using **standard work** and lockout-aware lab procedures.
- Compared servo-drive and frequency-drive settings across controlled cycles, recording speed stability and jam recovery.

- Presented sensor and alarm changes that made recurring failures easier for faculty and peers to diagnose.

**Controls Automation Project Engineer**

January 2025 - August 2025

Triangle Controls Capstone Project

Raleigh, NC

Guided controls design for a parcel-routing prototype, connecting PLC logic, inspection devices, conveyor motion, alarms, testing, documentation, and customer-style demonstrations.

- Designed parcel-routing prototype with PLC controls, conveyor motors, sensors, camera inspection, and labels.
- Converted process requirements into I/O lists, sequence diagrams, alarms, and acceptance tests.
- Programmed interlocks and recovery sequences, validating blocked sensors, missing labels, and overload conditions.
- Compared planned and observed cycle behavior through SCADA screens, resolving camera and diverter timing.
- Maintained revision-controlled wiring diagrams, controller backups, and **troubleshooting** notes for repeatable team testing.
- Presented safeguards and design tradeoffs to faculty reviewers and manufacturing guests during final demonstration.

**Industrial Automation Practicum Student**

September 2024 - December 2024

Wake Technical Community College Industrial Systems Lab

Raleigh, NC

Completed supervised industrial systems labs covering controllers, networks, drives, electrical distribution, simulated **MHE metrics**, safe commissioning, troubleshooting, and technical communication.

- Completed supervised exercises covering PLCs, Ethernet, **ControlNet**, **Profibus**, drives, and electrical distribution.
- Wired conveyor cells, verifying emergency stops, sensor inputs, motor direction, and safe restart behavior.
- Used multimeters, diagnostics, and status tables to separate electrical, communications, and logic faults.
- Monitored throughput, fault frequency, downtime, and recovery time in simulated material handling exercises.
- Created **standard work** for scanner alignment and photoelectric checks across repeated student lab setups.
- Explained equipment status, test limits, and follow-up actions during customer-focused team demonstrations.

**PROJECTS**

**Fulfillment Controls Reliability Study** 📅 2026

A focused study connected SCADA performance data with controller logs, helping identify repeat stoppages and propose clearer alarms for simulated material handling operations.

**Industrial Network Diagnostics Workbook** 📅 2025

Created a practical troubleshooting reference covering Ethernet, ControlNet, DeviceNet, Profibus, controller status, sensor checks, and drive fault isolation.

**LEADERSHIP & AWARDS**

- Dean's List, Carolina State University, Fall 2025
- Outstanding Controls Documentation Award, Triangle Controls Capstone Project, 2025
- Second Place, Carolina State University Automation Challenge, 2025
- Academic Excellence Scholarship, Wake Technical Community College, 2024

**CERTIFICATIONS**

- AWS Academy Cloud Foundations 📅 2026
- Cisco Networking Academy: Introduction to Industrial Networking Concepts 📅 2025
- OSHA 10-Hour General Industry Safety 📅 2025

**PROFESSIONAL AFFILIATIONS**

- Controls Team Lead, Carolina State University Robotics and Automation Club, 2025 - Present
- Peer Tutor, Electrical Circuits and Programmable Logic Controllers, 2024 - 2025
- Volunteer Demonstrator, Carolina State Engineering Open House, 2025

**LANGUAGES**

- English (Native)
- Vietnamese (Proficient)

**ADDITIONAL INFORMATION**

**Work Status** : Authorized to work in United States. No sponsorship required.

## REFERENCES

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AVAILABLE ON REQUEST