

Santiago Troya

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EDUCATION

Temple University, College of Engineering

Philadelphia, Pennsylvania

Bachelor of Science in Electrical and Computer Engineering

Graduation Expected: May 2028

- **GPA:** 3.86, **Dean's List:** Fall 2024, Spring 2025, Fall 2025
- **Selected Courses:** Circuits and Electronics II, Engineering Computation II, Power System Analysis, Digital Circuit Design, Technical Communication

RELEVANT EXPERIENCE

Mechatronics Lab – Temple University

Philadelphia, Pennsylvania

Owl Strike - Electrical Lead

May 2025–Present

- Designing and implementing an end-to-end embedded data acquisition and control system, integrating MATLAB with Arduino through serial communication.
- Implementing hardware design, wiring and configuring TCA9548A I2C Multiplexer and MCP4018 digital potentiometer for recreation of signals acquired with Arduino Uno's ADC.
- Mapping signals recorded with time and position of the drone and effectively recreating the movement recorded with a position and time error of 7.21%.

ECE 4712 - Temple University

Philadelphia, Pennsylvania

Junior Planning Engineer / 7-Bus Grid Expansion Project

April 2026–May 2026

- Upgraded a small-town 7-bus power system to accommodate a 150 MW data center expansion, successfully preventing voltage collapse and total blackout under N-1 contingency conditions.
- Utilized PowerWorld Simulator to run steady-state and contingency analyses, identifying critical system failures including undervoltages below 0.95 p.u. and thermal limits exceeding 173% of rated capacity.
- Optimized the grid to meet utility reliability criteria, improving the lowest bus voltage from 0.89 p.u. to 0.98 p.u. and reducing maximum line congestion from 173% to a safe 73%.

Mechatronics Lab – Temple University

Philadelphia, Pennsylvania

AirTrack - Electrical Lead

May 2025–Jan 2026

- Planning and developing circuits for the project, including DHT22, H206 slot-type opto interrupter, and Hall Angle Sensors, accurately measuring and reporting data collected.
- Implementing circuit design skills to efficiently use materials, leading to a low-cost alternative that provides accurate measurements.
- Programming the project's code with C++ in Arduino's IDE to register humidity, temperature, wind direction, and wind speed.

ADDITIONAL EXPERIENCE

Temple University IEEE

Philadelphia, Pennsylvania

E-Board - Website Manager

September 2025–Present

- Managing the website, maintaining it up to date with relevant information.
- Using GitHub Pages to Host the Website and Git to implement changes.
- Organizing and participating events alongside the IEEE E-board.

PROFESSIONAL AFFILIATIONS

Temple University Institute of Electrical and Electronics Engineers (IEEE)

August 2024–Present

IEEE HKN Honors Society

April 2026–Present

Temple University Formula Racing Team

August 2024–March 2025

SKILLS

Software: MATLAB, C++, C, Python, Verilog, git, Unix/Linux Systems, NI Multisim, Microsoft Office, Altium, KiCad, SOLIDWORKS

Hardware: Breadboarding, Soldering, Circuit Design, Oscilloscope