

Alexander Impastato

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Education:

Electrical and Computer Engineering.

September 2019- July 2025

New York Institute of Technology (NYIT).

Old Westbury, New York.

- B.S Electrical and Computer Engineering degree obtained in December 2023. (3.860 GPA).
- M.S Electrical and Computer Engineering student. (3.60 GPA).
- “Student Profile: Alexander Impastato.” Published article on NYIT News.
- Student honor award. Undergraduate Faculty Award.
- “Reaching for the Stars, One Robot at a Time.” Published article on NYIT News.

Work Experience:

NYCT Signal Design + Field Engineer

June 2021-Present

8th Avenue Project + Wheel Detector project. (L.K Comstock)

Bronx, New York

- Design and revise vital and nonvital speed-enforcement signal relays, SSI, and PLC circuit drawings/programs for New York City Transit’s speed enforcement circuit systems. Simulate and operate NYCT subway signals, indication lighting, stop machines, interlocking switches, axle counters, wheel detectors, and track circuits.
- Design and revise super wiring detail drawings, relay, PLC/SSI and zone controller rack drawings, tie in AC and DC power loop drawings, control line drawings, wheel sensor wiring drawings, junction box and track case wiring drawings, and maintenance.
- Programming software, Siemens TIA portal, Movicon, and Eco-struxture, used in preoperational and in-service testing procedures to simulate virtual maintainer control panels, axle counter systems, data communication systems, human-machine interfaces, and automatic train systems,
- Field Simulators utilized a virtual toggle switch box design to simulate virtual trains in real interlockings.

Adjunct Instructor

January 2026 – Present

Local 3 Union Transit School for Electricians.

Long Island City, New York.

- Teaching programable signal block control concepts and safe braking distance concepts.
- Teaching Stop Machine, Switch Machine, Traffic and Track Circuit + Axle Counter functionality
- Circuit diagrams illustrated to student to show real world applications to concepts.
- Teaching Communication-Based Train Control and CBTC Centric Theory and real-world application.
- Hosting transit lab tours while showcasing real and functioning transit equipment.

Design and Field Engineer

May 2023 – February 2024

Penn Access Metro North Project (L.K Comstock).

Bronx, New York.

- Designed and revised compound catenary wiring diagrams for Amtrak’s Overhead Catenary System. (OCS).
- Designed and revised shop drawings and work plans for the system’s supporting structures and foundations.
- Revised single-line circuit drawings for motor and hand-operating interlocking switches on train tracks.
- Inspected and verified the proper installation of OCS foundations, OCS supporting steel, and underground conduit cable connections to interlocking signals, switches, and electrical housings.

ERRSELA E2 Prototype Engineer.

September 2022-May 2023

ETIC Entrepreneurship and Technological Innovation Center (NYIT).

Old Westbury, New York.

- Constructed, soldered, wired, and programmed the drivetrain of a surgeon robot intended to perform surgeries on hospital patients. Project contract for Voya Foundation.
- Includes Python, MySQL, and Java programming experience.

Independent Projects:

Siemens TIA Singal Engineering PLC Projects

July 2022-Present.

- Proficient with Siemens TIA (Totally Integrated Automation Software to design Programmable logic controller projects that simulate train control towers and real-life New York City Transit Stop Machines, Signals, and switches that supervise train traffic.
- Designed operating Kings Highway Maintainers Control Pannel Simulation
- Designed operating Willets Point Maintainers Control Pannel Simulation.
- Designed operating Typical Diamond Crossover Interlocking control panel for teaching purposes.
- Familiar with PLC contacts, coils, S7-1200 to S7-1500 modules, Human Machine Interfaces, WinCC software.

Schnider Ecostruxture Machine Expert Axle Counter PLC Projects

- Proficient with Schnider Electric M221 TM221ME16R and ABL51Q24021 PLC modules used to simulate four train tracks with 6-8 axle counter each.
- Each axle counter capable of counting, counting down, remote reset and error state.
- Software can be transferred to physical modules for real-world applications.

Aqua Bot Senior Design Project

Sept 2022-May 2023

- Running tests on the primary image recognition software, which allows the robot to locate its plant target with over 20 successful identifications
- Development and maintenance of the robot's chassis and other attached hardware.
- Circuit design and sensor allocation. Sensor wiring, motor wiring, and water pump system mounting.
- Writing Python code for both V5 and Raspberry Pi Microcontrollers.
- Water-Feeding mechanism to adjust height and flow of water output.

Circuit Python Micro-mouse robot.

September 2024-May 2026

- Easy-Eda programming software used schematic and PCB files to create a custom PCB microcontroller.
- Programmed by Circuit Python to navigate the robot through a maze autonomously.
- 2 Encoder Motor drive with a 2:1 gearbox distance sensor with a 360-degree range of motion.
- Custom PCB contains a stepper motor driver, a servo motor driver and USB sensor reader. Is 3.7v and 5v logic safe.

Certifications and Memberships:

- Local 3 Union Administrative Member. (Local 3 International Brotherhood of Electrical Workers)
- NYIT Artificial Intelligence Proficiency Badge Certification. (New York Institue ot Technology).
- NYCT track safety certified. (Metropolitan Transit Authority, MTA)
- IEEE Young Professional Member (Institute of Electrical and Electronic Engineers USA).
- OSHA 30-Hour Certification (Occupational Safety and Health Administration).
- NYCT Relay Room Building Pass ((Metropolitan Transit Authority, MTA).

