

Charles A. Caiola

career@charlescaiola.com | 732-962-0046 | Boston, MA | linkedin.charlescaiola.com

Education

Northeastern University, College of Engineering | Boston, MA

June 2024

Bachelor of Science in Electrical and Computer Engineering

- Awards: Summa Cum Laude, IEEE Engineering Honors, Dean's List Scholar

Work Experience

Zepso Technologies | Burlington, MA

May 2024 – Present

Electrical Test Engineer

- Independently developed robust software suite for efficient, automated testing of devices on 8-inch MEMS wafers on both automatic and manual probe stations.
- Applied machine learning and object-oriented programming to test logic to streamline device characterization, pattern recognition, and analysis.
- Assisted with MEMS schematic design and refinement, leveraging various material sciences to determine ideal device design which also performing statistical analysis from personally -created SQL databases of test data.

Littelfuse | Beverly, MA

July – December 2023

R&D Electrical Engineering Co-op

- Independently developed Python-based user interface to automate lab testing processes, allow for new testing capabilities, enhance user and equipment safety, and increase testing accuracy by over 50%.
- Conducted comprehensive manual and automated testing procedures for solid-state relays within a laboratory environment, ensuring adherence to performance, reliability, and industry compliance benchmarks.
- Orchestrated the design and implementation of a comprehensive training database, encompassing lab safety protocols, testing schematics, and complete electrical calculations to enhance R&D operational efficiency.

Wayfair | Boston, MA

July – December 2022

IT Engineering Co-op

- Engineered and deployed advanced automation scripts, resulting in \$10,000 in cost reductions and a 600% increase in workforce productivity through targeted software efficiency enhancements.
- Crafted a Python-based program hub using Selenium WebDriver and a custom GUI, employing object-oriented programming principles to consolidate and automate three distinct ticketing workflows.
- Implemented JavaScript scripts leveraging Google APIs to automate and optimize large-scale data transfers, HTML email composition, and the streamlined generation and formatting of weekly user-data reports.

Engineering Projects

Covered: CSI Smart Home Automation | *Northeastern College of Engineering*

June 2023 – April 2024

- Researched and created a smart home system utilizing Wi-Fi Channel State Information and machine learning, enabling dynamic control of environmental settings for improved energy efficiency and comfort.
- Implemented a sophisticated occupancy detection system using a Raspberry Pi and Nexmon's CSI Extractor, enhancing home security while upholding user privacy through non-invasive monitoring techniques.

HULA: Haptic Ultrasonic Locational Assistant | *The Boston Home & Enabling Engineering*

January – April 2024

- Partnered with The Boston Home to design an affordable reverse sensor for powered wheelchairs, improving mobility and safety for users with multiple sclerosis.
- Leveraged Arduino to incorporate ultrasonic sensors into powered wheelchairs, delivering direct haptic feedback for improved obstacle awareness, user safety, and staff monitoring.

Technical Skills

Electronics: Lab equipment, circuit design, signal processing, FTIR, soldering, microcontrollers, wire bonding

Programming: Python, C++, MATLAB, JavaScript, CSS, SQL, SystemVerilog

Software: SOLIDWORKS, JMP, AutoCAD, Spice, LayoutEditor, Git, NextJS, Tailwind CSS