Edwin P. Baiden

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M.E. Electrical Engineering (Robotics & Power), with project experience in signal processing, communication theory, and hardware test; interested in wireless communication systems and RF testing.

EDUCATION

M.E. Electrical Engineering | Stevens Institute of Technology | Hoboken, NJ | Dec. 2025 | GPA: 3.902
- Concentration: Robotics and Autonomous Systems
- Certificate: Power Systems Engineering

B.S. Physics | Seton Hall University | South Orange, NJ | May 2025 | GPA: 3.914
- Minor: Applied Scientific Mathematics
- Graduated Summa Cum Laude

RELEVANT EXPERIENCE

Components Engineering Intern, Power & Actuation Systems | Marotta Controls Inc. | Parsippany, NJ | June 2025 – August 2025
- Ran Pinsky tin-whisker risk assessments on 7 CCAs across 3 programs and collected vendor pin stack-up data to support design and reliability reviews.
- Updated about 60 part numbers across 9 CCAs, moving BOMs from development to production revisions, aligning component selections with aerospace standards.

Project Engineering Intern, Power & Actuation Systems | Marotta Controls Inc. | Parsippany, NJ | September 2024 – May 2025
- Reviewed 5 CCA schematics for floating-metal risks, for high reliability power and actuation hardware, and delivered findings to the customer.

PROJECTS & RESEARCH

Enhancing Energy Storage with Flexible Laser-Induced Graphene Supercapacitors | Seton Hall University
- Designed and tested flexible graphene supercapacitors to improve energy and power density.
- Ran charge and discharge tests as well as power cycle tests to test capacitance and long term behavior and analyzed data in Excel.

Exploring the Potential of Piezoelectric Materials for Energy Harvesting | Seton Hall University
- Built and tested piezoelectric energy harvesting circuits with measured efficiencies up to about 65%.
- Used COMSOL Multiphysics and NI Multisim to tune the interface between the piezo cells and the circuits.

Voice Fingerprinting: Leveraging Fourier Analysis for Vocal Identification | Seton Hall University
- Wrote a Python-based vocal ID tool using a custom DFT routine to look at spoken word spectra.
- Reached about a 3% error rate in matching voices based on their frequency content.

Drone Design Project | Personal Project
- Designed a 4-layer power distribution board (2 oz copper) rated for 60 A and tested at 35 A continuous, focusing on thermal behavior and voltage drop.
- Developed Electronic Speed Controller (ESC) concepts and models, analyzing 6-step vs. Field-Oriented Control (FOC) for sensorless BLDC motor operation using LTspice.

RELEVANT SKILLS

Electrical Engineering: Digital & Analog Circuits, Circuit Analysis, Power Systems, Digital Communication Theory, Control Systems
Software & Tools: MATLAB, Simulink, Python, C++, COMSOL Multiphysics, NI Multisim, KiCad, OrCAD, VBA
Lab & Test: Oscilloscope, Digital Multimeter, Function Generator, Power Supply, Data Acquisition, Test Reports

RELEVANT COURSEWORK

Communication Theory I | Digital Signal Processing | Electricity and Magnetism I | Linear Systems Theory | Intro to Control Theory | Electronics I | Analytical Methods in Electrical Engineering