Diego Velazquez Correa

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Objective: As a passionate, multi-disciplinary electrical and computer engineering student, I am actively seeking a co-op, internship, or research opportunity in the field of electrical engineering and/or computer engineering. More specifically, I am interested in AI and machine learning on the computer engineering side, and I am interested in robotics and signal processing on the electrical side.

Education

Virginia Tech University — Blacksburg, VA 24060
B.S. in Machine Learning (CPE) — **GPA:** 3.90
B.S. in Communications & Networking (EE) — **Expected Graduation**: May 2026
Minor in Mathematics

Technical Projects

Virginia Tech Design Team — Jan. 2023 - Present
Hybrid Electric Vehicle Team (HEVT)
- Competing in the 4-year EcoCar EV Challenge focused on development of new generation electric battery vehicles
- Currently working on the CAV's subteam to implement cybersecurity on the CAN (controller automated network) for command actuation

Virginia Tech Design Project — Aug. 2024 - Dec 2024
Automatic Measurement of Plant Growth
- Working with YoloV8 to analyze plant growth and determine plant health in order to advance indoor farming
- Collaborated with other teammates to develop and improve a U-Net model for image segmentation

Course Project — Jan. 2023 - April. 2024
Wireless Sensor Node
- Developed an autonomous device to measure temperature data in remote environments and transmit readings to a home base
- Circuit simulation using LTSpice
- Worked with Arduino to implement PWM feedback and measure/transmit data to a receiver
- Designed a boost converter to charge a battery from a varying DC source

Virginia Tech Design Team — Aug. 2023 - April. 2024
Gobbler Rockets
- Designed and developed a rocket to meet Battle of the Rockets Mars competition guidelines
- Responsible for implementing the electronics and software of the rocket using Arduinos and I2C
- Collaborated with a diverse group of engineering students to achieve third place in the competition

Virginia Tech Hackathon — Sept. 2023
Hokie Translator
- Collaborated with a diverse set of teammates to implement various machine learning technologies
- Prototyped user UI/UX with Figma

Coursework — Jan. 2023 - Aug. 2023
Vertical Axis Wind Turbine
- Designed a vertical axis wind turbine in a team of 8 to supply 50% of an average household's power
- Created programs using Matlab to calculate turbine logistics
- Aided in the computer design of the turbine using solidworks

Technical Skills

Programming:
- C++
- MATLAB
- Python
- Java

Engineering:
- Solidworks
- Gitlab
- LTSpice
- Fusion 360 (certified)

Non-Technical Skills

- Communication of new ideas/principles
- Problem solving
- Spanish - Native Proficiency

Relevant Coursework

ECE 2714 - Signal and Systems

- Theory and applications of time domain and frequency domain analysis including Fouier transforms and signal filtering

ECE 3704 - Continuous and Discrete Time Systems

- Theory and applications of continuous and discrete time system theory, including stability analysis, feedback, Bode diagrams, Z transforms , Laplace transforms, and digital filtering

ECE 2544 – Digital Systems

- Introduction of design and analysis of digital systems, including computer arithmetic, combinational and sequential logic, and finite-state machines

ECE 2564 - Embedded Systems

- Programming embedded systems in a microcontroller based environment using C++ for digital control and data acquisition in engineering applications

ECE 3514 - Data Structures and Algorithms

- Developed a strong foundation in fundamental data structures and algorithms, including arrays, linked lists, stacks, queues, and trees
- Implemented sorting, searching, and tree traversal algorithms in C++ with a focus on good design practices

ECE 3074 - AC Circuit Analysis Laboratory

- Gained hands on experience conducting experiments on sinusoidal and phasor analysis, AC power analysis, magnetically coupled circuits, frequency response, and two-port circuits, with applications in impedance, Thevenin and Norton equivalents, and Bode plots

ECE 2804 - Integrated Design Project

- Semester long analog and digital design project

Other Experience

Nordstrom Rack — May. 2023 - Aug. 2024
Store Associate — Virginia

- Responsible for the clean and efficient operation of the apparel department.
- Consistently received positive feedback from management and clientele.

Home Depot — Aug. 2022 - June. 2023
Cashier

- Responsible for the efficient operation of the checkout customer experience