Christian E. Viteri

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EDUCATION

Georgia Institute of Technology | GPA 4.0/4.0 — **Atlanta, GA**
Candidate for M.S. in Mechanical Engineering — **Expected, May 2025**
Concentration in Dynamics and Controls - Classical, Linear Systems Theory, Digital Control Systems, Optimization
Member/Advisor for Engineers Without Borders – Ecuador Team

Massachusetts Institute of Technology — **Cambridge, MA**
B.S. in Mechanical Engineering with a Concentration in Control, Instrumentation, and Robotics | **GPA 4.9/5.0** — **June 2023**
Minor in Film, Concentration in Comparative Media Studies
Member of Pi Tau Sigma Mechanical Engineering Honor Society, Varsity Football, Phi Beta Epsilon

WORK EXPERIENCE

Emvolon | *Full/Part Time Mechanical Engineering Intern* — **Woburn, MA | Feb. 2024-Oct. 2024**
- Led design of AC and DC power, control, and safety circuits for an internal combustion engine repurposed as a methane reactor.
- Designed electromechanical integration and instrumentation of custom coolant and gas intake subassemblies while retrofitting a Ford 3.0L EcoBoost engine with new control hardware/software.
- Documented high level PFD, P&ID, safety, and control hierarchies to handle emergency shutdowns and ensure compliance with NFPA 39/70.

Mach Industries | *Full Time Mechanical Engineering Intern* — **Charlestown, MA |June 2023-Aug. 2023**
- Design of custom injection molded, CNC milled, and 3D printed parts in SolidWorks for an automated hydrogen reactor capable of producing 2kg of hydrogen per hour.
- Design and construction of an electronic control system for an automated hydrogen reactor and electrolyzer.
- SolidWorks surfacing of airfoils for UAV design and analysis in ANSYS.

LIFT Aircraft | *Full Time Mechanical Engineering Intern* — **Austin, TX | May 2022-May 2023**
- Designed eVTOL control simulation within MATLAB + Simulink in cooperation with Embention's Veronte Autopilot software.
- Supported Flight Operations with ground station operation, aircraft maintenance, and conducting pre-flight checks.
- Improved organization through development of assembly serialization methods, technical manuals, and parts tracking on aircraft.

Unique Electric Solutions | *Full and Part Time Mechanical Engineering Intern* — **Saint James, NY | May 2020-Jan. 2021**
- Constructed SolidWorks models and drawings of custom sheet metal components for an electric UPS vehicle and a hybrid Freightliner Cascadia truck, working with complex assemblies and satisfying design requirements.
- Led development of technician's manual in accordance with CARB standards for hybridization of a Class 8 vehicle.
- Increased efficiency of part organization and reorder tracking in transitioning to Odoo for BOM information.

RESEARCH

Georgia Institute of Technology| *Graduate Student Researcher* — **Atlanta, GA |Sept. 2023-Present**
- Developing convex optimization algorithms to control electric vehicle and battery energy storage charging, advised by Dr. Michael Leamy and Dr. David Taylor.
- Writing MATLAB and Python code to simulate control behaviors, obtain cost estimates for residential and commercial settings, and determine grid-impact metrics such as voltage drop/rise, transformer overloads, and sensitivity.
- Publication in 2024 IECON Conference – *Electric Vehicle Charging in a Single Residence with Rooftop Solar and Energy Storage.*

Van Rees Lab | *Undergraduate Researcher* — **Cambridge, MA |Feb. 2021-May 2021**
- Worked under Wim Van Rees to study the feasibility of using surrogate models to predict aerodynamic loadings.
- Constructed comparison of Radial Basis Functions and Kriging surrogate models in SMT Python package while using XFOIL to generate pressure profiles and structural positions of a 2-dimensional airfoil.

MIT Department of Mechanical Engineering | *Undergraduate Researcher* — **Cambridge, MA | Dec. 2020-Feb. 2021**
- Worked under Yu Chen and John Heywood to develop a kinematic representation of a piston in an internal combustion engine and analyze the dynamics influenced by theoretical mechanical alterations.
- Led the design of a kinematic representation in MATLAB to reproduce piston profile over engine cycles, using the software to model a dwell time at the top dead center position for the piston.

SKILLS AND PROJECTS

Skills: Python/MATLAB | SolidWorks/Fusion360 | Soldering | PCB Design | Design for CNC/Injection Molding | Control Design
Projects: *Grippi* – Automatic Gripper Tool |Electric Guitar Digital Signal Processor | 50 Injection Molded Yo-Yos | Quadrotor Trajectory Optimization and Control Design