

Isai Andrade

914-719-5728 | isai.m.andrade@vanderbilt.edu | [linkedin.com/in/isai-andrade](https://www.linkedin.com/in/isai-andrade)

EDUCATION

Vanderbilt University | Nashville, TN | Expected May 2024

Bachelor of Engineering - Mechanical Engineering | **Minors** - Astronomy and Digital Fabrication | **GPA** - 3.74

Coursework | Fluid Mechanics, System Dynamics, Machine Analysis and Design, Mechatronics,

Thermodynamics, Instrumentation, Mechanics of Materials, Dynamics, Circuits, Statics

Spring 2023 Coursework | Aerospace Propulsion, CFD, Heat Transfer, Machining, FEA, Rapid Prototyping

PROJECTS

CubeSat | Spring 2022-Present

- Collecting atmospheric data to approximately 25 km above surface for future organization projects by constructing CubeSat consisting of cameras, electrical sensors, parachute, helium balloon, radar reflector.
- Ensuring successful retrieval of CubeSat and payload by utilizing SolidWorks to design an internal bracing system to securely bolt all electrical components and external components to attach parachute system.
- Verified external components withstand at least 3.75N by conducting test drops and using SolidWorks to simulate FEA analysis of 50N (13x expected force), achieving a maximum deflection of 1.14 μm .

Miniature Tetris | Spring 2022

- Designed a fully functional Tetris arcade game as a final class project utilizing Arduino Uno and Mechatronics principles to present at design symposium to group of peers and professors.
- Improved user experience on an existing project by utilizing existing libraries to implement new coding techniques to achieve positive feedback on creating smoother game controls and recreating realistic game mechanics.
- Created a realistic consumer product using SolidWorks to model a miniature arcade housing unit to display 2 8x8 LED matrices as an arcade game screen connected to a controller on an accompanying breadboard.

Wireless Charging Station | Fall 2021

- Improved existing product by using SolidWorks to model a docking system more functional for Apple products by incorporating MagSafe technology to simultaneously charge multiple products with ease.
- Received positive feedback on improvements from professor by creating final project report consisting of multiple rendered prototypes, functional 3D assemblies, and drafted 2D engineering drawings.

Battery-Powered Miniature Tiger | Fall 2021

- Completed introductory project to mechanical design by learning fundamentals of SolidWorks to model components of a battery-powered tiger and create a functional 3D modeled assembly and physical assembly.
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PROFESSIONAL EXPERIENCE

Washington Irving Boat Club | Tarrytown, NY | May 2021-Jan 2022

Accountant Intern

- Aided in employing over 50 new workers by using Excel to optimize recordkeeping methods.
 - Helped manage payments to 75 employees and distributors through programs such as QuickBooks and ADP.
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EXTRACURRICULARS

Vanderbilt University Motorsports (FSAE) | Fall 2022-Present

Vehicle Aerodynamics Team

- Improving airflow into externally angled radiators to optimize engine cooling by implementing SolidWorks Flow Simulation on 3D model and justifying additional weight of designed vehicle sidepods.

Vanderbilt University Satellite Club | Jan 2022-Present

Structural Design Lead

- Collecting atmospheric data for future organization projects by designing and constructing internal and external structural components for several iterations of the CubeSat.
 - Learning principles of aerodynamics to conduct stress analysis and flow simulations on future aerospace projects
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TECHNICAL SKILLS

Mechanical

- SolidWorks (CSWA), Fusion360, AutoCAD, 2D Engineering Drawings, FEA, Flow Simulations, ANSYS

Electrical & Software

- MATLAB, LabVIEW, Arduino, Soldering, Wiring, Microsoft Office Suite