

# Alvaro Guerra

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## **EDUCATION**

### **Texas A&M University (TAMU)**

*Bachelor of Science in Mechanical Engineering*

May 2025

*College Station, TX*

## **EXPERIENCE**

### **IGNITORS Rocketry Team Structures Lead**

November 2024 - Present

- Lead design and fabrication of a G12-fiberglass composite airframe to reach 10,000 feet, ensuring FEA-validated structural integrity for Mach 1 loading conditions.
- Deliver weekly presentations on composite manufacturing and structural analysis, ensuring precise structural integration and effective teamwork

### **SAE Aero Design Team Structures and Material Science Designer**

May 2022 - April 2023

- 1st Place International Finalist at SAE Aero West
- Led design and fabrication of critical steel payload system (58% plane weight), optimizing strength-to-weight ratio for surrounding wooden truss members using topology optimization and FEA.

### **Garden Cultivation Robot Capstone Senior Designer**

August 2024 - Present

- Designed and structurally validated the robot chassis using beam analysis and FEA simulations in SolidWorks
- Calibrating electro-mechanical sensors and code with Raspberry Pi and Arduino microcontrollers for improved PID motion, pressure, temperature, GPS, and soil sensing accuracy

### **T.U.R.T.L.E. Sumo Bot Designer/Programmer**

May 2022- May 2023

- Developed 40+ sketches and 3D models; final design selected using a decision matrix considering factors such as quality, ergonomics, and cost
- Modeled sumo bot exterior with solidworks and programmed remote-controlled movement and user interface with arduino and python

### **River Valley Appraisals of Texas, LLC Analyst Intern**

May 2021 - August 2021

- Conducted property evaluations using regression analysis and comparable sales market data to derive accurate property valuations

## **SKILLS**

- CAD & Analysis: Solidworks, Inventor, Onshape, GD&T, Ansys, Matlab, Labview, Python
- Fabrication: CNC Machining, 3D Printing (Prusa/Ender3), Metrology, Hand Tools
- Project Portfolio: <https://sites.google.com/view/alvarog-engineeringportfolio/projects>