ENGINEERING PORTFOLIO

Aariz Noorani

Mechanical Engineering, Georgia Tech (expected Dec 2028) · anoorani6@gatech.edu · (404) 988-9456 · linkedin.com/in/aariz-noorani · AarizNoorani.com

Mechanical engineering student focused on battery and vehicle systems, CAD, composites, and prototyping. Before transferring to Georgia Tech, I completed mechanical engineering coursework at Kennesaw State University with a 4.0/4.0 GPA (President's List) and joined KSU Motorsports.

17%
Lighter custom battery vs. best COTS

1–2 mm
Sensor gap held by tolerance stack-up

10x
Flight-time gain, competition plane

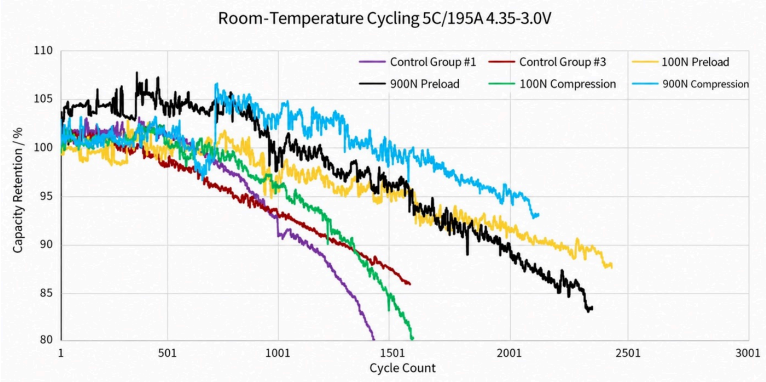
4.0
GPA, KSU mechanical engineering

HyTech Racing: Driverless Steering Battery

Aug 2026 – Present

Battery Systems & E-Drives Member, Georgia Tech Formula SAE Electric





I work on the battery that powers the steering motor for driverless operation. I first selected a commercial off-the-shelf (COTS) battery, trading off electrical output, gravimetric and volumetric energy density, packaging, thermal limits, and cost.

17%
lighter than the best off-the-shelf option

I then designed a custom 12 V battery sized to the motor's power draw, covering cell selection, cell stack, and module layout. It is 17% lighter than the best COTS alternative.

I analyzed cell compression and state-of-health (SOH) data (chart above) to set stack compression, estimated at 50 N, and selected PC/ABS FR compression plates that maximize capacity at the target SOH while adding electrical and thermal insulation.

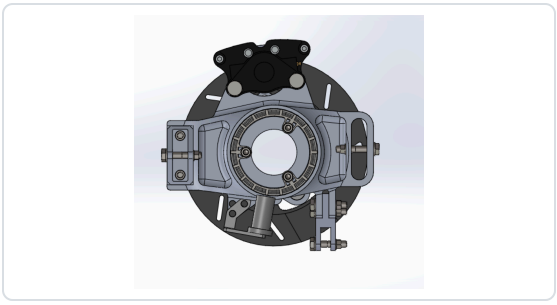
Battery Pack Design · Cell Selection · Trade Studies · Data Analysis

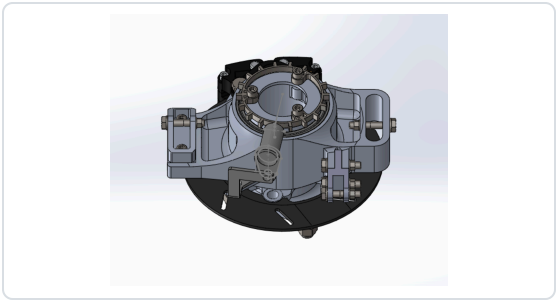
KSU Motorsports: Wheel Speed Sensor Bracket

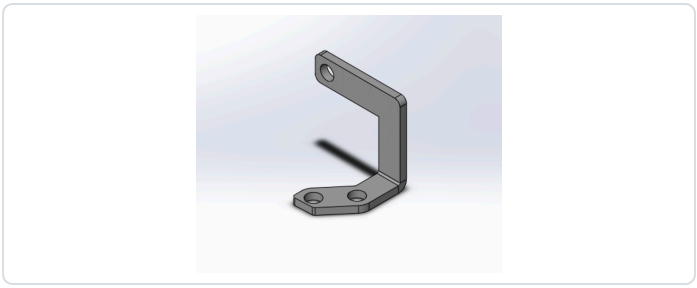
Aug 2025 – May 2026

Vehicle Dynamics & Composites Member, Kennesaw State Formula SAE

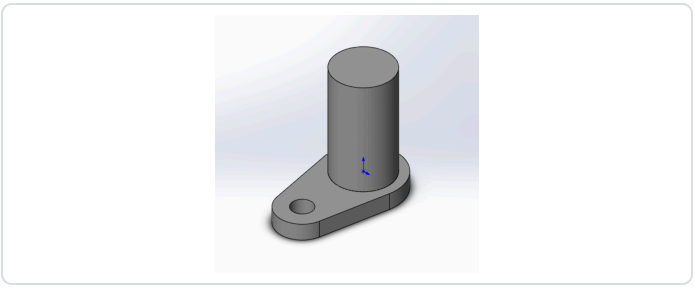








Sensor mounting bracket



Locating pin with coordinate system origin

Problem: The car's wheel speed sensor wasn't reading accurately. It wasn't constrained to point at the center of the cam ring, and it wasn't held at the right distance from the ring's teeth to stay inside the sensor's reading range.

What I did: I built a coordinate system and used plane mates in the assembly to lock the sensor's orientation to the ring's center. I measured the physical sensor with calipers and re-modeled it to exact dimensions instead of trusting an approximate model.

- Designed the mounting bracket in SolidWorks to mate directly to that verified sensor position, using assembly-driven design to fit within the wheel assembly.
- Ran a tolerance stack-up so worst-case machined brackets held the sensor within its 1–2 mm sensing gap, and kept the bridge gap within FSAE rules.
- Built a SolidWorks configuration table so each bracket variant matched the specific sensor it would be paired with, since small unit-to-unit differences would otherwise throw off the reading.

Composites: I also fabricated 5 carbon fiber aero panels (wing, nose, side body) for the next season's aero package by wet layup: prepping molds with multi-coat release agent, laying plies at calculated resin ratios, and vacuum-bagging each part to cure.

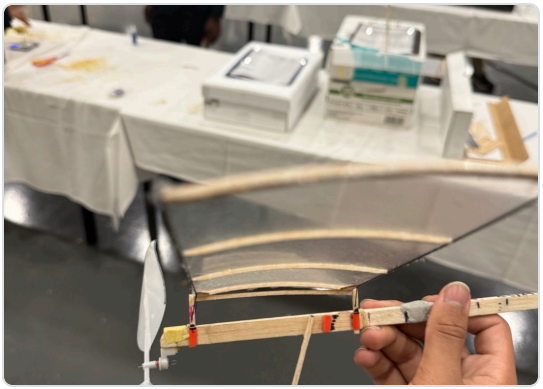
SolidWorks | Tolerance Stack-Up | Assembly Mates | Configuration Tables | Carbon Fiber Layup | Vacuum Bagging

Self-Propelled Competition Airplane

Aug 2021 – May 2025

Technology Student Association, GSMST · Team Member, then Team Leader (2023–2025)





10x
flight time over previous designs

Built a self-propelled airplane optimized for long flights, then led the team through several prototype cycles with CAD models and scaled engineering drawings. The final design increased flight time 10x over previous designs.

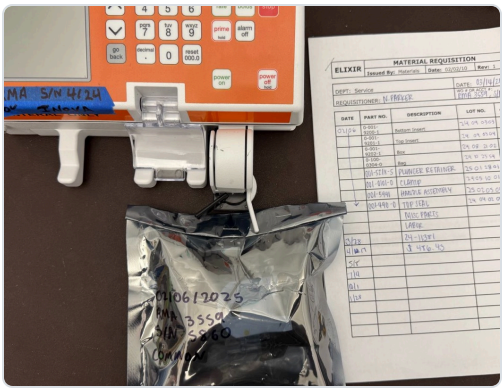
CAD · Prototyping · Engineering Drawings · Team Leadership

Enteral Feeding Pump Repair

Jan 2025 – May 2025

Repair Technician, Atlanta Biomedical Corporation





Diagnosed and repaired 30+ enteral feeding pumps used in infant urgent care, tracing mechanical and electrical faults to their root cause with an oscilloscope and multimeter rather than just swapping parts. Documented each repair in FDA-compliant service records before returning units to clinical use.

Root Cause Analysis · Mechanical Troubleshooting · Electrical Troubleshooting · Medical Devices

---

ASCII Data Interpreter

Sep 2025 – Apr 2026

Software Developer, Atlanta Biomedical Corporation

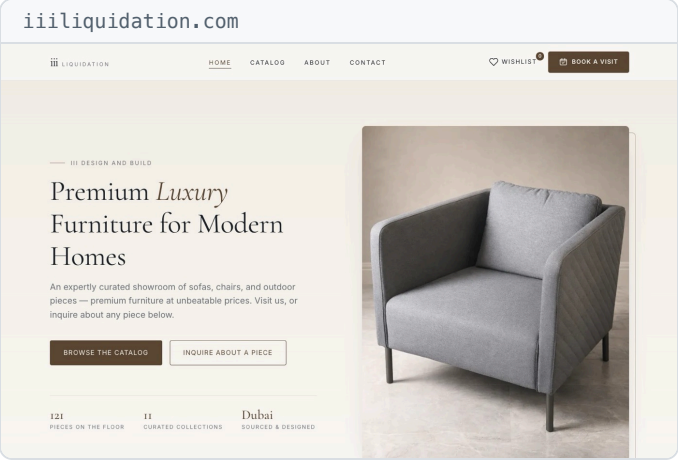
Developed a Python interpreter that converts the feeding pumps' raw ASCII logs into readable tables, eliminating hours of manual decoding. Built it from modular functions so it stays readable while interpreting 35+ ASCII functions, and added CRC validation and invalid-line detection to catch corrupted data and support FDA-compliant outputs.

Python · Data Validation · CRC · Modular Programming

SOFTWARE & BUSINESS SYSTEMS

III Liquidation & Furniture Store

Operations & Systems Manager · May – Oct 2026



Built and launched the store's website solo, growing it from zero to 13K page views a month. Built an inventory system tracking $200K+ in products, invoices, pricing, and international shipments, and ran the 3,000 sq ft warehouse, generating $2,500+ in additional sales.

Speed Macros

Founder · Sep 2026 – Present



Built and deployed a research-based nutrition and workout tracking app using Claude's API, then packaged it for iOS and Android with Capacitor, directing AI coding agents through 190+ commits in 5 weeks.

SKILLS

CAD & Design	SolidWorks · GD&T · AutoCAD · CATIA · Onshape · Engineering Drawings
Hands-On	Battery Pack Design · Composite Layup (wet layup, vacuum bagging) · Prototyping · CNC Lathe · 3D Printing · Multimeter · Oscilloscope · Mechanical/Electrical Troubleshooting
Programming	MATLAB · Python · Java · JavaScript · Excel · Git · C, C#, C++ (basic)
Coursework	Statics · Engineering Graphics · Differential Equations · Dynamics* · Mechanics of Materials* · Materials Science* · Computing for Engineers*
Languages	Hindi (conversational) · Spanish (intermediate) · German (elementary)

* In progress, Fall 2026

More photos and project detail at **AarizNoorani.com**