

# THERESE JOIE ESPINO

Mechanical Engineer in Atlanta, GA | US Citizen

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## SKILLS

**Design Tools and Presentation:** SOLIDWORKS, KiCAD, LTspice, ANSYS, OpenFOAM, Windaq, Adobe CC, Microsoft Office Suite

**Computer Programming:** MATLAB, Java, Python, C++

**Rapid Prototyping:** Additive Manufacturing (FDM, SLA, MJF), Composites (Carbon Fiber and Fiberglass Layups), Soldering, CNC and Manual Mill, Lathe, Router, Waterjet, Plasma and Laser Cutter, Plastic Injection Molding, Sheet Metal Bending, TIG Welding

## EXPERIENCE

### Mechanical Engineer II | Earthly Dynamics | Roswell, GA

*Feb 2022 - Present*

- Owned the design and development of competition-sensitive auto-derigging system, autonomous drone, and magnetically actuated landing gear; electrical and mechanical hardware survived cyclical +200G shock loads, vibrational, and extreme thermal testing while delivering precise activation timing.
- Collaborated cross-functionally with electrical, software, and production teams to take prototypes from concept to completion; tasks required performing hand calculations and utilizing SOLIDWORKS for master assemblies, solid and surface modeling, FEA (structural), sheet metal design, and drawing packages with GD&T.
- Supported flight demonstrations by bench testing shock loads seen during consecutive aircraft deployments and landings, analyzing post-flight data with MATLAB and Python, performing on-site repair and maintenance, and formally presenting project status to DoD clients.
- Led production lines cutting assembly time up to 40%; managed inventory and logistics, distributed technician tasks, organized Gantt charts, wrote BOMs and fabrication manuals, and performed quality control.
- Responsible for debugging, wiring, and freight shipping sensitive avionics and mechatronic systems used in payloads and airdropped structures.
- Edited PCBs, using KiCAD, and potted components to prep for high-vibration environments.

### Mechanical Engineer Intern | Area-I | Marietta, GA

*Aug 2020 - Jan 2022*

- Responsible for the design, manufacturing, and testing of a pneumatic launcher; tasks included hand calculations, FEA (structural and modal analysis), design reports and procedure, drawing packages using GD&T, bills of materials, floor fabrication, and bench testing.
- General use of shop tools and machines for rapid prototyping small projects: temperature regulator, payload twist lock interface, and a launching slug.
- Setup testing rigs for high altitude weather and actuated pneumatic subsystems using Arduino and Windaq (data acquisition box and software), sensors (LIDAR, pressure, hall effect, thermistor), and MATLAB for post-processing data.
- Performed composite layups to prototype UAV fuselage concepts in-house before final design selection.
- Reverse engineered an OTS backshell to reduce part cost by 90%.

### Mechanical Engineer Intern | ENERCON | Kennesaw, GA

*Jun 2020 - Aug 2020*

- Sorted through P&ID and nuclear cooling drawings to calculate re-estimates for volumetric total and flowrate.
- Performed factory tests on equipment to gather data outputs, document hazards, and improve in-field procedures.

## PROJECTS

### Undergraduate Researcher | Nuclear Energy, Science, and Engineering Laboratory | Marietta, GA

*Jan 2019 - May 2021*

- Built pebble bed reactor CFD simulations using OpenFOAM; tasks included literature and parameter research, meshing, and simplifying boundary conditions.
- Analyzed pebble packing sizes and arrangements to compare heat transfer efficiency for real-life versus experimental values which led to a proposed hexagonal configuration.

### Suspension Team Member | Formula SAE | Marietta, GA

*Apr 2019 - May 2020*

- Designed and manufactured wishbone-style control arms using shop machines (CNC mill, lathe, and TIG welding) and SOLIDWORKS features: 2D and 3D CAD drawings, FEA (cyclic and structural analysis), CAM (HSMWorks).
- Compiled control arm research, calculations, fabrication, and lab tests in a team report which assessed concept failures and successes that led to the final design.
- Wrote a MATLAB program determining bending, compressive, and tensile loads which reduced redundant hand calculations and subsystem weight by 40%.

## EDUCATION

### Kennesaw State University

*Dec 2021*

Bachelor of Science: Mechanical Engineering  
Minor in Nuclear Engineering