Benito Rincon Ramirez

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EDUCATION

Arizona State University **Tempe, AZ**
Bachelor of Science in Mechanical Engineering | **Cumulative GPA: 3.61/4.0** *Graduation: 05/2024*
Master of Science in Mechanical Engineering | **Cumulative GPA: 4.0/4.0** *Expected Graduation:12/2025*

WORK EXPERIENCE & INTERNSHIPS

National Renewable Energy Laboratory (NREL) **Golden, CO**
Graduate Intern *06/2025 – 08/2025*
- Manufactured thermal energy storage composites that included phase change materials and studied its thermal capabilities
- Designed molds and exterior water tank in Solid Works for manufacturing and CFD analysis
- Using MATLAB, modeled experimental testing using nodal analysis and validated its thermal capabilities

Arizona State University **Tempe, AZ**
Graduate Research Assistant (Dr. Candace K. Chan Research Group) *01/2022 – 02/2025*
- Investigated barrier properties of packaging materials for flexible batteries
- Conducted battery testing analysis, & implemented battery testing protocols
- Fabricated packaging pouch cells & assisted in the iteration of various designs to achieve the expected capacity

Sandia National Laboratories **Albuquerque, NM**
Technical Undergraduate Intern *05/2023 – 7/2023*
- Performed photolithography nanofabrication process in a clean room & performed research using nanoscale methods
- Conducted semiconductor thermal transport analysis & electrical measurement

Rice University **Tempe, AZ**
Research Experiences for Undergraduates (REU) *06/2021 – 8/2021*
- Conducted research on water treatment using an electrochemical process for the removal of nitrite, nitrate, & PFOA

NASA ASCEND **Phoenix, AZ**
Mechanical Engineering Intern *08/2020 – 05/2021*
- Designed & assembled the internal & external components of a high-altitude payload system with a team of 10
- Fabricated carbon fiber housing, hardened with epoxy for durability, & thermally insulated using a space blanket
- Utilized SolidWorks for detailed CAD modeling & performed prototyping with 3D printing techniques
- Conducted a successful payload launch, collecting velocity, temperature, and 2-hour video recording

TECHNICAL SKILLS

Skills: • ANSYS Mechanical & Fluent • SolidWorks • MATLAB • COMSOL • Arduino IDE • Autodesk Fusion 360 • Simulink • Battery Testing Analysis • Tensile Tester • Maskless Aligner • Bending Machine • Band Sealer • Ion Mill • Glove Box • Land Tester

RELEVANT EXPERIENCES & PROJECTS

- **Senior Capstone Project –** Designed and prototyped a robotic arm. Performed stress simulations on the chassis and mechanical parts. Created CAD models for product assemblies, including detailed individual part drawings and a bill of materials (BOM). Integrated Arduino-based electrical components and programmed the controller to execute desired movements on servos. Designed circuits & used Tinkercad for simulations on electrical components.
- **Gearbox Design Project** – Designed and modeled shafts, gears, bearings, and keys in SolidWorks. Calculated gearing ratios, the number of teeth on pinions & gears. Process included force analysis on gears & shafts, obtained factor values of mechanical principle design, and calculated critical speeds of shafts. Used a force and moment diagram to determine critical stress points. Conducted drawings and exploded view of all components with assembly.
- **Modern Manufacturing Projects** – Applied finite element analysis (FEA) to perform heat transfer analysis on additive manufacturing methods using ANSYS. Laser sintering and fused deposition modeling methods were simulated.
- **Computational Fluid Dynamics (CFD) Projects** – Performed fluid analysis using ANSYS Fluent on a helix spring heater, pressurized chamber, water tower, fluid mixture, & different complex-shaped models.
- **Mechanical Systems Projects** – Conducted physical experiments on a cooling tower, water pump, air conditioning, & instrumentation systems. Analyzed data points, used instrumentation to read values, calculated uncertainty, & derived relevant values. Simulated cooling tower in Simulink.

ACTIVITIES & LEADERSHIP

Society of Hispanic Professional Engineers (SHPE) *Active E- Board Member (Chapter Liaison)* *01/2022 – Present*
Phoenix College Alumni & Development Council Committee *Active Member* *05/2024 – Present*