Elderson Mercado Rivera

Email: elderson.mercado1@upr.edu | E-portfolio: https://eldersonmercado1.wixsite.com/resumeelderson1

OBJECTIVE

Acquire academic and/or professional experience where I can harness and further expand my knowledge of mechanical engineering.

EDUCATION

University of Puerto Rico – Mayagüez, Puerto Rico — Expected Graduation Date: **May 2024**
Bachelor of Science in Mechanical Engineering; Minor in Project Management — General GPA: **4.00/4.00** Major GPA: **4.00/4.00**

PROFESSIONAL & RESEARCH EXPERIENCE

Boeing Satellite Systems Summer Internship *– Mechanisms Engineering Intern at El Segundo, CA* **May '23 – Aug '23**

- **Supported** the development of mechanism assemblies and component designs using 3-D Computer Aided Design tools and GD&T standards.

M.I.T. Summer Research Program (MSRP) 2022 *– Research Assistant at the Cordero Lab* **June '22 – Dec '22**

- **Designed** and **manufactured** a thermal cycling rig system that simulates the drastic temperature gradients inside a reusable ox-rich turbopump. In collaboration with Dr. Zachary Cordero, I also helped **characterize** the behavior of ignition-resistant coatings for particle impact testing.

NASA Rotorcraft Aeromechanics Spring Internship *– Aeromechanics Intern at NASA Ames Research Center* **Jan '22 – May '22**

- **Enable** the development of vertical flight vehicles to provide unlimited mobility in 3 dimensions for terrestrial and planetary science applications. **Collaborated** in the **manufacturing** process of the RAPTOR. **Designed** and **optimized** novel airfoils for the ROAMX Project.

Stanford University REU (SURF 2021) *– Assistant Researcher of the Zheng Research Group* **June '21 – Aug '21**

- As a participant of the Summer Undergraduate Research Fellowship (SURF) at Stanford School of Engineering, I **implemented** machine learning classification models in the prediction of Remaining Useful Life (RUL) of turbofan engines under the guidance of Dr. Xiaolin Zheng.

Low Melting Point Metallic Suspension Nano-composite PCM as a Thermal Management Solution for More Electric Systems (sponsored by NASA Marshall Space Flight Center) *– Assistant Researcher* **Aug '20 – Present**

- Mentored by Dr. Pedro Quintero, I **created** a matrix of nano-fillers and composites used in the development of a thermal management model.

Penn State University REU – *Assistant Researcher at the Materials Research Institute* **June '20 – Aug '20**

- As a participant of the 2020 Scalable Nanomanufacturing of Complex Materials REU at Penn State University, I **assisted** Dr. Saptarshi Das in one of his research projects by **discovering** and **studying** alternative 2D materials that could reinstate the complexity scaling of MOSFETs.

Diffusion Soldering and Phase Change Materials for Advanced Packaging of Power Switching Technologies (sponsored by the Army Research Office) *–Volunteer Researcher* **Aug '19 – 'May 20**

- **Analyzed** and **explored**, under the mentorship of Dr. Pedro Quintero, efficient phase change materials (PCM) capable of cooling electronic devices properly through thermal analyses and conductivity parameters.

EXTRACURRICULAR ACTIVITIES

UPRM Research Fair – *Logistics Team Member* **Aug '21 – Present**

- **Contacted** professors to present their research projects. **Hosted** presentations and **encouraged** students on campus to get involved in research.

SAE UPRM Collegiate's Chapter RUM-Air Team – *Team Member* **May '19 – June '20**

- **Worked** actively in the project management and business department. I also **designed** and **manufactured** a CDA (Colonist Delivery Aircraft) for the team's Advanced Class radio-controlled aircraft ("El Padrón"), which competed at the 2020 SAE Aero Design West Competition.

NASA RASC-AL UPRM Team – *Team Member and Researcher* **Sep '18 – June '19**

- **Collaborated** actively in the design process of a gateway-based lunar vehicle project for the 2019 NASA RASC-AL Contest. I also **designed** the structure of the landing legs and the robotic arm of the lunar lander for the project *Lunar Exploration and Access to Polar Regions (LEAPR).*

Vertical Flight Society (Philadelphia Chapter) – *Member* **Jan '22 – Present**

National Society of Leadership and Success (NSLS) *– Member* **Sep '20 – Present**

National Society of Collegiate Scholars (NSCS) – *Member* **July '19 – Present**

American Society for Engineering Education (ASEE)-UPRM Chapter – *Member* **Aug '18 – Present**

- **Offered** mentorship to high schoolers to help them improve their performance on their college admission tests.
- **Volunteered** as a Mechanical Engineering assistant at the third and fourth edition of *Engineering Fun Day*, an activity created by the ASEE-UPRM Chapter in where middle school and high school students from unrepresented communities can interact and learn more about the different engineering fields through conferences and STEM-based group challenges.

Come Colegial Program – *Volunteer* **Aug '18 – Present**

- **Contributed** dynamically to the recollection and distribution of free food for undergraduates in financial need at campus.

Society of Hispanic Professional Engineers, SHPE UPRM - *Member* **Aug '18 – Present**

- **Collaborated** as a volunteer at the 2019 Puerto Rico Regional Science Bowl.

AWARDS / HONORS

- Undergraduate Poster Presentation winner in the Engineering category at SACNAS NDiSTEM **[2023]**
- Boston Scientific Scholarship **[2022]** & HACE's Dr. Ervin "Vinny" Caraballo Scholarship **[2023]**
- Great Minds in STEM (GMiS) Scholarship [sponsored by Northrop Grumman] & Andrés Calderón Scholarship **[2022]**
- The Boeing Company Scholarship ("Boeing Excellence Award") **[2021, 2023]**
- Hispanic Scholarship Fund (HSF) Scholar & Evertec Scholarship **[2021-Present]**
- First Place in the Advanced Class category at the SAE Aero Design West Competition **[2020]**
- Lockheed Martin Scholarship **[2019]** & First Place (Overall) at the NASA RASC-AL Contest **[2019]**
- NSF's S-STEM Scholar of the Engineering Program for Engineering Access, Retention, and LIATS Success (E-PEARLS), Dean's List and Honor Roll of the Mechanical Engineering Department **[2018-Present]**

SKILLS / IMPORTANT COURSES

- Fluid Mechanics, Heat Transfer, Materials Science, Design of Machine Elements, Thermodynamics (I & II), Algorithms and Computer Programming.
- Fluent in English and Spanish, Lean Six Sigma Yellow Belt, and Google Project Management Certificate.
- Microsoft [Excel, Word, Power Point] (Advanced), Python (Proficient), SolidWorks (Proficient), Siemens NX 12 (Proficient), AutoCAD (Basic), MATLAB (Basic), STAR-CCM+ (Basic), Fusion 360 (Proficient).
- Leadership, teamwork, ability to multitask, excellent communication and interpersonal skills. **Willing to relocate if needed.**