Julio Montaño

Product Development Engineer

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Education

Tecnologico de Monterrey – Mechatronics Engineering **August 2018 – June 2023**

- Relevant Coursework: Control Systems, Research Internships, Electromagnetism, Robotics, Power Electronics.
- Proficient in using technical tools and software, such as CAD, MATLAB, and Simulink, to design and simulate mechatronic systems, and able to communicate technical concepts to non-technical stakeholders effectively.

Professional Experience

Tecnológico de Monterrey – Research Intern **January 2021 – June 2022**

- Engineered an intelligent automotive suspension system that enhanced passenger comfort by 10–40%, leading to publication in "Advances in Automation and Robotics Research". Hyperlink
- Validated a mathematical model to compute optimal tilt and azimuth angles for solar energy harvesting in northeast Mexico, achieving over 5% annual increase in solar energy capture for non-tracking and discrete tracking systems. Findings were published in the scientific journal "Energies". Hyperlink
- Worked on the electric vehicles laboratory at my university for six months, during this timeframe I led a team of ten undergraduate students to modify an electric vehicle. We designed a powertrain and a control system which would give it high performance and autonomous driving capabilities using state of the art equipment like Lidar sensors and in-wheel motors. Validated the vehicle for autonomous operation, demonstrating proficiency in wireless communication systems and control. These findings were published and presented in an internal conference, Expo-ingeniería.
- Conducted an experiment on renewable energies that compared thermoelectrical energy sources with current technologies and concluded usage viability of over 23.678 TWh per day, just in the city of Monterrey. Hyperlink.

Diseño de Proyectos & Ingeniería– HVAC Engineer **January 2022 – August 2022**

- Designed and managed HVAC system proposals for healthcare facilities, including a major hospital (300+ A/C units) and a large clinic (100+ units), securing winning tenders through compliance-driven, energy-efficient solutions.
- Designed the HVAC wiring diagrams, control panel programming and wiring, electrical load calculations, and electronic component selection (Sensors, Actuators and Controllers).

Ford Motor Company– Design & Release Engineer **July 2023 - Present**

- Led the design process for the transmission cooling systems for Bronco Sport, Maverick, Escape, Edge, and Corsair in their 2025-2029 model year run. Worked on both the FHEV and PHEV variants of these vehicles.
- Participated in a three-month long machine learning Ford Bootcamp. We are now using these acquired abilities to solve an ongoing issue present in a vehicle which costs the company over $100,000* every year.
- Managed the warranty issues for the entire cooling team and set the quality goals. This caused a 20% decrease on our warranty issues. This was possible thanks to new data analytics procedures and by organizing weekly meetings.
- Designed a warranty analysis system based on smart dashboards that has become the standard for internal warranty communication within the thermal branch of product development.
- Collaborated with cross functional teams, including the ones responsible for the engine and transmission design, the electrical distribution and the cooling system to ensure seamless system integration and performance.
- Sole cooling systems engineer present throughout the 2025 vehicle launch process at Hermosillo Assembly Plant, ensuring seamless design-to-production continuity and system integration success.
- Generated $1,000,000* in cost savings within two years by leading design optimizations and strategic supplier negotiations, streamlining components while maintaining performance.
- Proposed eight different patent ideas, the most recent one being a design that utilizes thermoelectrical modules for an additional energy source to a vehicle, using the Seebeck effect.

*USD

- • Simulation: MATLAB, Simulink, Multisim, SPICE, EasyEDA, Proteus
- • CAD/Design: CATIA, SolidWorks, Fusion360, AutoCAD
- • Programming: Python, Jupyter
- • Tools: Teamcenter, FMEA, Root Cause Analysis, DFMEA, PCB Design
- • Languages: Spanish (Native), English (C1 TOEFL: 106/120)