Ana Lizette **González Cataño**

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Summary

Mechanical Engineer with hands-on experience in design for manufacturability, tooling development, process optimisation, and fixture/assembly design. Skilled in CAD modelling, FEA validation, DFMA, and technical drawing standards (ASME Y14.5). Experienced in developing 3D-printed tooling, improving assembly workflows, and supporting factory engineering activities. Strong analytical background through academic project work and practical exposure to high-mix manufacturing environments. Seeking a role in manufacturing engineering, product engineering, or process development.

Education

Cranfield University — *Cranfield, United Kingdom*

M.Sc. Advanced Motorsport Engineering — *Sept. 2023 - Sept. 2024*

- Modules: Powertrains, Motorsports Electronics and Data Acquisition, Business of Motorsport, Vehicle Dynamics, Aerodynamics, Computational Fluid Dynamics, Composite Structures, Structural Analysis
- Extracurricular Activities: F1 Design Sprint

Tecnológico de Monterrey — *Chihuahua, Chihuahua, México & Monterrey, Nuevo León, México*

B.Sc. Mechanical Engineering — *Aug. 2019 - June 2023*

- Final grade of 92.32 with Academic Distinction
- 40% merit scholarship granted due to academic performance & entrance evaluation
- Extracurriculars: Gravity Racecar Team (build & driver), Teaching & Leadership programme, violin workshop
- Mathematics & Data Science, Image Culture, Public Speaking, Ethics & Sustainability, Automotive Engineering

Work Experience

Emerson — *Chihuahua, Chihuahua, México*

Design Internship — *March 2023 - June 2023*

- Developed tooling and fixtures to improve manufacturability and assembly consistency within an electronics manufacturing environment.
- Designed and 3D-printed a prototype seal that improved airtightness in orbital weld heads and reduced contamination risk.
- Corrected legacy blueprints and updated dimensional tolerances in compliance with ASME Y14.5 standards to eliminate production issues.
- Designed compact coil-handling trays optimised for space efficiency, static isolation, and reduced assembly time.
- Produced rapid-application fixtures, ergonomic placement tools, and brazing clamps to streamline operator workflows and minimise defects.
- Created high-density coil transport trays accommodating varied sizes while protecting sensitive components from damage and electromagnetic interference.
- Presented engineering analyses and DFMA recommendations to senior supervisors and manufacturing leadership.

Engineering Projects

Mechanically-Assisted Screw Dispenser Design — *Tecnológico de Monterrey, Chihuahua, México*

Electronics Manufacturing Fixture (SMTC) — *May 2023*

- Designed a fixture to reduce assembly line by 40% for high tension industrial connectors.
- Conducted risk analysis, DFMA review, and FEA simulations to validate motion smoothness, structural integrity, and reliability.
- Selected cost-efficient materials compatible with electromagnetic requirements.
- Created full CAD and technical drawings using ASME Y14.5-2018 standards.

Jaguar I-PACE Battery Tray Redesign — *Tecnológico de Monterrey, Nuevo León, México*

Automotive Engineering Course First Midterm Project — *August 2022*

- Converted a steel battery tray to aluminium, reducing weight while maintaining structural and safety requirements.
- Performed FEA and vibration simulations, assessed DFMA feasibility, and evaluated potential failure modes.

Autonomous Guide Vehicle (AGV) — *Tecnológico de Monterrey, Nuevo León, México*

Design and Manufacturing — *November 2022*

- Led chassis design and building using ASTM A36 steel for a hospital logistics AGV.
- Conducted structural FEA, defined suspension anchor points, produced technical drawings, and participated in welding and assembly.

Engine Piston Rod Failure Analysis — *Tecnológico de Monterrey, Chihuahua, México*

Bachelor's Degree Project — *February 2022*

- Performed metallographic analysis on a TEO-540-C1A engine rod.
- Conducted fatigue modelling, polishing, mounting, and microscopic inspection to determine material behaviour and failure mechanisms.

Skills

Software

- MATLAB, Solidworks, Siemens NX, Python, AVL Boost, ANSYS, Pi Toolbox, MiniTab, MoTec, Blender (basic), Lightroom, Microsoft packages

Engineering

- DFMA, GD&T(ASME Y14.5, CAD modelling, fixture/tooling design, FEA, composites, structural testing

Workshop

- Power tools, hand tools, welding, basic machining

Other Experience & Projects

Maker Fest Vehicle Mechanics Showcase & Presentation *Chihuahua, Chihuahua, México*

Sucesso Motor Student Group *Novermber 21 2025*

- by showcasing a few vehicle components and giving a short presentation on engine fundamentals and suspension systems, along with a small hands-on activity.

Technical Safety Powertrains Inspector, Volunteering *Chihuahua, Chihuahua, México*

Super Copa Roshfrans *September 4 2025 - September 8 2025*

- Flag marshal for GTM & Tractocamiones practice sessions, monitored track safety and reported incidents.
- Conducted technical scrutineering, verified seals, checked driver PPE, supervised pit lane logistics, and assisted with fuel sample handling.

Graphic Design Contractor *Chihuahua, Chihuahua, México*

FEI Hípica's Event *August 11 2025 - September 8 2025 (Contract)*

- Designed guidebooks, banners, signage icons, and formatted documents following FEI branding and event specifications.

Event Support Staff *Chihuahua, Chihuahua, México*

"Clásico" Club Hípico Campestre de Chihuahua *May 21 2025 - June 5 2025 (Contract)*

- Supported logistics, awards delivery, vendor coordination, and administrative tasks during the annual show jumping competition.

Hackathon *Chihuahua, Chihuahua, México*

Innovative Technology & Coding Competition *2018*

- Developed a GPS-tracking pet collar concept, placed second overall.