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Summary

Mechanical Engineer with strong skills in CAD modelling, product development, user-focused prototyping, and manufacturing-oriented design. Experienced in creating 3D-printed tools, ergonomic fixtures, and design concepts that improve usability, reduce assembly time, and enhance product reliability. Skilled in SolidWorks, NX, and FEA methods, with a background spanning concept generation, DFMA, and hands-on testing. Combines engineering rigour with creative design abilities, supported by practical experience in documentation, graphic design, and multidisciplinary project work.

Education

Cranfield University

M.Sc. ADVANCED MOTORSPORT ENGINEERING

Cranfield, United Kingdom

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

B.Sc. MECHANICAL ENGINEERING

Chihuahua, Chihuahua, México & Monterrey, Nuevo León, México

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, Image Culture

Work Experience

Emerson

DESIGN INTERNSHIP

Chihuahua, Chihuahua, México

March 2023 - June 2023

- Designed and 3-D printed a prototype seal for orbital weld heads, improving fit and airtightness to minimise contamination and leakage.
- Updated legacy blueprints and corrected dimensional inaccuracies applying ASME Y14.5 standards to eliminate production issues.
- Created a compact tray for multi-size bobbin handles, optimising space usage, rotation, and static isolation while reducing assembly time.
- Developed a rapid tracing fixture for weld-repellent pens, ensuring consistent height, straightness, and uniform application around pipe circumferences.
- Designed ergonomic handling tools for thin copper wires, preventing damage and improving placement precision in small coils.
- Produced single-piece 3D-printed clamps for brazing Coriolis mass flow sensors, reducing thermal damage risk and simplifying furnace setup.
- Developed a coil transport tray with bone-shaped slots to maximise capacity and protect electromagnetically sensitive parts. Presented full design analyses to senior supervisors, applying DFA/DFMA principles and proposing cost and time-saving improvements.

Relevant Projects

Carbon Fibre Wing Airfoil with Flax C Spar/Core

Cranfield University, United Kingdom

January 2024

COMPOSITE STRUCTURES PROJECT

- Manufactured a carbon fibre airfoil with a flax C-Spar and core, documenting processes for repeatability and error reduction.
- Calculated predicted deflection under load and validated via 3-point bending tests analysing discrepancies between theory and experiment.

Mechanically-Assisted Screw Dispenser Design

Tecnológico de Monterrey, Chihuahua, México

May 2023

ELECTRONICS MANUFACTURING FIXTURE (SMTC)

- 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.

Group Design Project: Alternative-Fuel Racing Vehicle

Cranfield University, United Kingdom

February 2024

MULTI-DISCIPLINARY 3-MONTH PROJECT

- Contributed to concept design of a rotary-engine racing vehicle for drag, circuit, and rally style events whilst being street legal.
- Built track models using Solidworks, Blender, OpenStreetMap, DEM, and LIDAR data to support accurate simulation conditions.
- Developed MATLAB tools for early suspension configuration, including damper and spring selection based on mass and ride frequency.
- Designed suspension packaging, including in-wheel motors, custom knuckles, gearboxes, and horizontal damper layouts.
- Produced regulatory-compliant lighting and bodywork elements and contributed to final presentations and renders.

Autonomous Guide Vehicle (AGV)

DESIGN AND MANUFACTURING

- 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.

Tecnológico de Monterrey, Nuevo

León, México

November 2022

Engine Piston Rod Failure Analysis

BACHELOR'S DEGREE PROJECT

- 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.

Tecnológico de Monterrey,

Chihuahua, México

February 2022

Skills

Engineering Tools

- ANSYS, Matlab, Python, FEA, basic CFD, material selection, composites

Prototyping

- 3D printing, rapid prototyping, ergonomic fixtures, assembly aids.

Design Tools

- Solidworks, NX, CAD surfacing, 3D modelling, technical drawing (ASME Y14.5)

Other

- Power tools, hand tools, welding, graphic design (icons, layouts, documentation), report design & formatting

Other Experience & Projects

Maker Fest Vehicle Mechanics Showcase & Presentation

Chihuahua, Chihuahua, México

SUCESSO MOTOR STUDENT GROUP

November 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.