

OSCAR TODD

Mechatronics Engineer | Robotics, Control & Industrial Systems

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SUMMARY

Mechatronics and Robotics Engineer focused on intelligent robotic systems, advanced control, and industrial automation. Experienced in electromechanical integration, manufacturing systems, rapid prototyping, and reliability engineering across complex industrial environments, combining hands-on hardware development with model-based and data-driven approaches for physical systems. Strong background in multidisciplinary engineering, troubleshooting, and system-level problem solving for robotics and industrial applications.

EXPERIENCE

UnternehmerTUM - Garching bei München, Germany

High-Tech Workshop Working Student

Dec 2025 - Present

- Perform electromechanical troubleshooting and root-cause analysis on manufacturing and prototyping equipment, improving operational reliability across multidisciplinary workshop environments.
- Execute rapid prototyping and hardware development workflows using CNC machining, metal fabrication, welding, waterjet cutting, laser cutting, and additive manufacturing technologies.
- Contribute to the development, manufacturing, and integration of early-stage hardware systems and functional prototypes within multidisciplinary startup engineering teams.

Procter & Gamble Mexico - Mexico City, Mexico

Operations Department Senior Manager

Sep 2023 - Jul 2024

- Led a 50+ person team in the world's largest dry laundry operation (60 tons/h), increasing volume by 35% YoY and achieving record reliability in the last 15 years (downtime cut from 13% to 5% in making, and in packing from 7% to 2%), through IWS Implementation and lean manufacturing strategies (EO Coaching and RTT).
- Sustained best-in-history quality performance with <0.5% unplanned holds for 16 consecutive months, a reduction of 1.5%, and applied a process control system.
- Designed and deployed 40+ technician role descriptions with skill matrices, along with a LATAM-wide capability program certifying 25+ employees in progressive maintenance, assuring the IWS phase advance in Medellín, Colombia, and Vallejo, Mexico plants.

Technical Department Senior Manager

Jul 2022 - Sep 2023

- Eliminated chronic production losses through root cause analysis (0 UP Stops due to the same problem) and supported critical maintenance improvements at Colombia's site. (90% vs 60% Health check PM result YoY)
- Led the technical department, improving maintenance plans in the whole department through planning and scheduling, maintenance master data, tools and facilities, and technicians' certification. Reducing Planned Downtime from 17% to 12%.
- As Planning & Scheduling and MMIS Plant Leader, led and deployed a plant-wide Planning & Scheduling system, certifying the whole plant in Progressive Maintenance. (+20 Technicians).

Maintenance Department Manager

Mar 2021 - Jul 2022

- Reduced equipment breakdowns by 50% through Progressive Maintenance strategies and optimized alignment practices, eliminating misalignment-related failures.
- Developed and executed maintenance strategies for critical assets and led SAP integration using Progressive Maintenance principles. 7 Critical equipment with a full maintenance plan (spare parts and maintenance process)
- Delivered savings of up to 8M MXN and received the CEO Award 2022 for outstanding impact

Material Utilization Process Engineer

Jul 2019 - Mar 2021

- Led Material Utilization optimization initiatives in a detergent manufacturing process, achieving annual cost savings of up to USD 800,000 through the loss elimination process and deployment of operational standards.
- Implemented an inventory tracking system using SAP and diagnosed/optimized dosing and measurement systems (scales, flowmeters, powder-adding systems), improving material traceability, accuracy, and production consistency.
- Established governance and ownership for Material Utilization standards, trained technicians, and developed advanced inventory skills for a lead technician, directly contributing to a 50% compensation increase and long-term professional growth.

ENGINEERING PROJECTS

TUFast Moto Team - Technische Universität München

Running Gear Sub-Team Member

Apr 2025 - Oct 2025

- Built a high-voltage battery system (120 V peak voltage, 50 kW peak power) in 56 continuous hours during the MotoStudent 2025 competition at MotorLand Aragón.

YouTube & TikTok Engineering Content Platforms - Personal Project

Science Communication Content Creator

2023 - Present

- Developed science and engineering-focused content across YouTube and TikTok platforms, reaching 1.8k+ followers on TikTok and 160+ YouTube subscribers.

Berkeley Hyperloop - University of California Berkeley

Structures Sub-Team Member

Jan 2018 - Jun 2018

- Engineered and fabricated the chassis structure for the 2018 Hyperloop competition prototype, reducing prototype manufacturing cost by approximately 50%.

Puma Off Road Team - UNAM

Chassis Sub-System Leader

2016 - 2018

- Led the design and manufacturing of the off-road vehicle chassis for BAJA SAE Illinois 2017 and BAJA SAE Mexico 2017, contributing to the first team vehicle to complete the 4-hour endurance challenge.

EDUCATION

TECHNISCHE UNIVERSITÄT MÜNCHEN - München, Germany

Apr 2025 - Apr 2027

Master of Science, Mechatronics, Robotics, and Biomechanical Engineering

Focused on advanced control, machine learning for physical systems, and model-based design of complex mechatronic and robotic systems, with applications in real-time, medical, and automotive engineering.

UNIVERSITY OF CALIFORNIA BERKELEY - Berkeley, USA

Jan 2018 - Jun 2018

Academic Exchange, Mechanical Engineering

Focused on Finite Element Analysis, LabVIEW Application, mechatronics design, and engineering dynamics.

Universidad Nacional Autónoma de México - Mexico City, Mexico

2014 - 2019

Bachelor of Science, Mechatronics Engineering.

Graduated with Academic Excellence (9.57/10), ranked 32/2403 across all engineering majors

SKILLS

Robotics & Control: Model Predictive Control (MPC), Control Systems, Real-Time Embedded Systems, Robotics Integration, System Modelling, Mechatronic Systems.

Programming & Hardware Integration: Python, C++, SQL, Excel, MATLAB, Simulink, Arduino, Raspberry Pi.

CAD/CAM Design: SolidWorks, ALTAIR Hyperworks, CATIA, Fusion 360, Illustrator, KiCad.

Manufacturing: Haas CNC, Lathe, Manual Milling, Welding (MIG, TIG, SMAW), 3D Printing, Laser Cutting, Waterjet Cutting.

Industrial: SAP, Lean Manufacturing, IWS Implementation, Preventive and Progressive Maintenance, Loss Elimination Process, Autonomous Maintenance.

Languages: Spanish (native), English (fluent), German (technical working proficiency).