

# Armando Maldonado

*Project / Process Engineer | Automation  
& Manufacturing Optimization | PhD  
Candidate*

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## Professional profile

Highly proactive Project / Process Engineer with 8+ years of experience in medical device manufacturing, automation, and industrial systems. PhD Candidate in Engineering researching Intelligent Optimization of SCADA Systems and Predictive Monitoring using AI Agents. Strong background in FDA-compliant validation, systems integration, and multidisciplinary collaboration across software, mechanical, and electrical domains. Proven record leading multimillion-dollar projects, achieving cost reductions, and implementing data-driven process improvements. Skilled in system-level validation, risk analysis, and predictive maintenance strategies. Technical expertise in PLC/SCADA integration, Python, SQL, Minitab, and CAD tools (SolidWorks, AutoCAD). Bilingual (EN/ES), with demonstrated ability to drive cross-functional leadership, ensure compliance, and deliver innovation in healthcare technology.

## Professional Competencies and Skills

- **Automation, Testing & Controls:** PLC (Allen Bradley), SCADA Ignition, Pneumatics, Hydraulics, Predictive Maintenance. Protocol development, automated test design, statistical methods.
- **Programming & Data:** Python, Pandas, Jupyter Notebooks, SQL, Minitab, TensorFlow, PyTorch, Data Analysis.
- **CAD & Design:** SolidWorks, AutoCAD.
- **Methodologies:** Lean Manufacturing, Six Sigma, Cost Reduction.
- **Project Management:** MS Project, Cross-functional leadership, Business process optimization.
- "Industry 4.0, IoT Solutions, GMP / ISO 13485 Compliance"

## Experience achievements

Mar 2018 - Currently

### **Medtronic, Nellcor Puritan Bennett México, S.A. of C.V. [Baja California, México] Project / Process Engineer**

#### • Role achievements:

- Led \$3.3M validation project for 38 test systems, achieving FDA compliance and production floor updates within 18 months.
- Implemented raw material validation project, reducing production costs by 15% in 3 months.
- Directed cross-functional project meetings with Manufacturing, QA, Calibration, Import/Export, Buyers, Planning, and Maintenance to ensure deliverables.
- Managed supplier coordination and First Article Inspections, improving regulatory compliance and reducing supplier defect rates.
- Developed engineering samples and supported external testing, accelerating verification cycles and ensuring regulatory compliance for new product introduction.
- Executed Installation & Performance Qualification (IQ/PQ) protocols, ensuring smooth integration of new equipment into production.
- Utilized Microsoft Project to manage timelines, integrating technical knowledge in mechanical, electrical, molding, and materials engineering.

- Validated and integrated electromechanical medical devices under FDA and ISO 13485 standards, developing test protocols, risk assessments, and statistical analysis for system-level characterization.

Mar 2017 - Mar 2018

**Medtronic, Nellcor Puritan Bennett México, S.A. of C.V. [Baja California, México]**  
**Quality Assurance Engineering Technician at Molding Area.**

• Role achievements:

- Developed Test Method Validations protocols and reports for molded parts.
- Updated quality documentation (PFMEA, Process Maps).
- Reviewed regulatory impact documentation (FDA requirements).
- Supported validation of design and quality processes in molding area.

Apr 2016 – Jun 2016

**[Apr 2016 – Jun 2016] [SMK Electronics S.A. de C.V.] [Baja California, México]**  
**Project Development Intern.**

• Role achievements:

- Assisted in engineering documentation and process validation support.

## Education

2024 – In progress

**PhD. In Engineering**

*Baja California's State University (UABC) Baja California, MX*

Research focus: AI Agents integration in SCADA for predictive monitoring.

2016-2019

**Master in Engineering and Innovation – MedTech**

*St. Cloud State University MN, USA / CETYS University. Baja California, MX*

Professional ID: **12087341**

2011-2016

**Engineering in Mechatronics**

*Baja California's State University (UABC) Baja California, MX*

Professional ID: **11445844**

## Certifications & Training

**AI Agents Bootcamp** – *Specialized course [In progress]*

*UDEMY Academy (Dic 2025)*

*(43 training hours)*

**Intelligent Automation Conference**

*TechEx, Santa Clara, CA (Jun 2025)*

**SCADA Ignition** – *Specialized course*

*[Design, Program and Interface]*

*UDEMY Academy (Apr 2025)*

*(7 training hours)*

**Industrial Process Mechatronics** – *Specialized course*

*Center for Assistance and Technological Services (March 2025)*

*(304 training hours)*

**Artificial Intelligence and Deep Learning with Python, TensorFlow, and Keras** – *Specialized course*  
UDEMY Academy (Aug 2024)  
(27 training hours)

**Natural Language Processing with Python** – *Specialized course*  
UDEMY Academy (Apr 2024)  
(13 training hours)

**SQL Server Bootcamp** – *Specialized course*  
UDEMY Academy (Feb 2024)  
(16 training hours)

**Python Programming Bootcamp** – *Specialized course*  
UDEMY Academy (Nov 2023)  
(106 training hours)

**SolidWorks Essentials** – *Specialized course*  
Center for Assistance and Technological Services (June 2018)  
(56 training hours)

**Strategy Planning and Execution** – *Course*  
**Innovation and Creativity** – *Course*  
**Time management**– *Course*  
**Team management**– *Course*  
Harvard Manage Mentor (2017)

**MedTech Expo**  
MD&M West, Anaheim, CA (2024)

## Languages

**Spanish** - Native proficiency (100%)  
**English** - TOEFL Certified (2019 & 2024)