

Name: Daniel Alvarado Peláez

**Degree:** Mechatronic Engineer

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#### About me

I am Ecuadorian, Mechatronic Engineer passionate about the technological world and with it the possibility of being part of it creating my own projects.

I have skills and experience related to 3D design, web and application programming, data analysis, data science, and embedded systems development. Able to work and learn autonomously, predisposed to work in multidisciplinary teams to share, improve or learn various knowledge.

# **Experience**

#### **General Specialist**

Information Tecnology XOA S. A. / MAY 2023 - Present

Frontend and backend programming to add or enhance new functionalities to the company's services.

Troubleshooting, addressing concerns, and fixing bugs for clients related to the offered services.

Checking services and servers for optimal performance.

Developing local services for the company's internal use.

Updating versions of services offered to different clients.

Assembling and testing embedded systems for the company.

#### Research Assistant (Development Technician)

Center for Information Technologies (CTI) / MAR 2022 - APR 2022

Developing prediction models for the energy consumption of Data Center infrastructure, using Jupyter notebooks for data preprocessing, processing, executing various ML models, and comparing results.

Reviewing and improving an application for obtaining equipment data.

Design with the Laravel framework, a educational web platform was developed, with functionalities for creating profiles, roles, and online tests, associated with books, courses, and instructors.

#### **Publications**

# Comparison of Traditional ML Algorithms for Energy Consumption Prediction Models

2022 IEEE Future Networks World Forum (FNWF), Montreal, QC, Canada, 2022, pp. 232-237, R. Estrada, V. Asanza, D. Torres, I. Valeriano and D. Alvarado

doi: 10.1109/FNWF55208.2022.00048.



# **Projects**

### **Thermal Monitoring Drone**

CAD designs and Arduino circuits for a drone. CAD designs, circuits, and Raspberry Pi program for an embedded system that detects cable presence, captures thermal images, and detects temperature spikes.



#### **Real-time OPC Simulation**

Real-time circuit simulation, connected via OPC to a LABVIEW interface, for monitoring and control.



## **Proteus/Ubidots Pump Control**

Design of a pump system in Proteus, controlled by an Atmega328p, and visualization in Ubidots of the system's status communicated by a program developed in Python.



#### **Knee Prosthesis Adaptation**

3D design of a knee and editing of a total knee prosthesis, using Slice 3D and Blender software to adapt the existing knee prosthesis to the test knee.



# **LABVIEW Pump Control**

Design of an HMI for the control of a pump system, which has three pumps. Two pumps are primary and the third is backup in case one fails or is disabled for maintenance. Each pump has its start and stop pushbuttons, as well as its enable or disable selector. The system will have manual and automatic operation commanded by the signal sent by a selector.



#### **Dynamic Mechanism Simulation**

A mechanism is designed where the shaft of a mill receives the necessary power and speed through pulley-chains. In turn, the shaft that transmits power to the pulley with chain receives the input power through a set of V-belt pulleys, as well as being supported by 2 bearings.



#### Rice Stacker Design

Design and feasibility analysis of a rice stacker using renewable energy for implementation in a developing agricultural community.



#### Automatic Pet Feeder

Automatic pet feeder project controlled by a mobile application that allows scheduling feeding times.



#### **Flexible Manufacturing Process**

Redesigning the bottle manufacturing system of a company to reduce production times, increase system flexibility, and improve company profitability.



# **Sugar Production Quality**

#### Objective:

Improve sugar production quality system by modifying manufacturing stages to avoid frequent product rejection upon delivery.

#### Issue:

A sugar-producing plant consists of several stages containing certain processes that make production efficient:

- \*Crystallization
- \*Juice delivery and extraction
- \*Evaporation
- \*Juice purification

The plant lacks sugar quality controls, so customers want quality tests based on random sampling so that if the product passes the tests, the order is accepted; otherwise, the product will be returned in full regardless of the order size.



#### **Skills**

## **Programming languages**

JAVA; Python; C/C++; HTML; JavaScript; PHP

#### Related

Node.js; Laravel; Jupyter Notebook

#### **Databases**

MySQL; Postgresql; MongoDB; Redis

#### Related

MongoDBCompass; MongoDB Atlas; Laragon; XAMPP; HeidiSQL; PGAdmin4

#### Other development tools

Paquete Office; Git & GitHub; Docker; MATLAB & Simulink

#### hardware tools

Arduino; Raspberry Pi; ESP32 - 8266; PLC Siemens; PLC Logo

#### Technical skills

Development and programming ; Analytics and data science ; 3d design ; Development of embedded systems

#### Related

Autodesk Inventor; Autodesk AutoCAD; Automation Studio; CADe Simu; CCW (Connected

Components Workbench); FluidSIM; LabVIEW; TIA Portal; Proteus; FlexSim

# Personal skills

Teamwork; Commitment to tasks; Learning capacity; Orientation to results

# Languages

Spanish - Native ; English - C1

# **Certificates**

	MAR 2023
Python para data scientist avanzado	
	FEB 2023
Docker esencial	
	FEB 2023
Learning Docker	
	FEB 2023
OPENedX Escritura Académica	
	ENE 2023
Examen CAMBRIDGE ENGLISH PLACEMENT TEST, C1	
	DIC 2022
Cuarta revolución Industrial: Data science	
	FEB 2022
Aprende Excel (Office365/Microsoft365)	
	FEB 2022
Cómo eliminar las distracciones	
	FEB 2022
Cómo conciliar las funciones múltiples del líder	
	FEB 2022
Introducción a la programación en Python	
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Fundamentos de programación en PLC	
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Python para data science y big data esencial	
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# **MATLAB Onramp**

**OCT 2020** 

# Certificate of Competency in English, ECCE B2

**NOV 2017** 

# Certificado de graduación, CEN

MAY 2017



Link to certificates

# **Education**

**Higher Education, Mechatronics Engineering** 

Escuela Superior Politécnica del Litoral (ESPOL) / Guayaquil, Ecuador / OCT 2017 - FEB 2023

**Primary - Secondary Education** 

Unidad Educativa FAE N°2 / Guayaquil, Ecuador / MAY 2005 - FEB 2017