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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.

Web Programmer

Edu4lab / MAY 2021 - JUL 2021

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

Despliegue de MySQL con Docker

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

ABR 2021

Fundamentos de programación en PLC

SEPT 2021

Python para data science y big data esencial

SEPT 2021

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 Nº2 / Guayaquil, Ecuador / MAY 2005 - FEB 2017