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WORK EXPERIENCE

HAVVOX IT AND DIGITAL INNOVATION | D365 Software Dev Jr
Mazatlán, Sinaloa | March 2022 - March 2023

- Most of the task achieved required X++ on D365 Visual Studio Extension, in addition of cross-check validation and land Queries on SQL Server Managment Studio. Other less technical tasks were writting code documentation and sometimes presenting the work to the client before production deploy.
- As Microsoft partners we used Azure DevOps to manage the project and we also used the agile methodology to manage the project.

CONSEIL EUROPÉEN POUR LA RECHERCHE NUCLÉAIRE | Research Assistant
Meyrin, Switzerland | Nov 2018 - Dec 2018

- Mission was to enhance AD and V0 ALICE's detectors, the goal was to detect more particles.
- High-end oscilloscope measures were done to proof UAS proposed sensor could be used. We also wrote a full report on the results showing a 15% increase of the number of particles detected per second which led to higher quality data representation. Hence the project was in count for the next cycles of upgrades of ALICE.

UNIVERSIDAD AUTÓNOMA DE SINALOA | Research Assistant
Culiacán, Sinaloa | Sep 2018 - Oct 2018

- An electronic SMD board with a 10-bits 1Gsps LVDS ADC was repaired with help of oscilloscope and review of the schematic and PCB desing.
- We described the LVDS and HSMC protocol on FPGA to read data from the repaired board in order to make it work as planned. All of this on VHDL.
- It was prework for the next project which was to include the measurement module in ALICE at CERN.

CINVESTAV DEL INSTITUTO POLITECNICO NACIONAL | Research Assistant
Zapopan, Jalisco | Nov 2017 - Dec 2017

- We did robotic related calculations and desing as we worked on Automatic Control area.
- i worked on the control for a haptic robot arm to help kids with rehabilitation of their entire superior members using MatLab.

EDUCATION

MSc. Computer Science
Zapopan, Jalisco | Sep 2019 - Sep 2021
Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional
Coursework: Software Engineering, Data Structures and Algorithms, Cryptography, Machine Learning, High Performance Computing.

BSc. Biomedical Engineering
Mazatlán, Sinaloa | Sep 2015 - Dec 2018
Universidad Politécnica de Sinaloa
Coursework: Databases, OOP, Microcontrollers, Image & Signal Processing, Analog & Logic Desing, Metrology.

MAJOR PROJECTS

ELECTRONIC HEALTH RECORD SYSTEM(2020)
Blockchain, Solidity, IPFS

- Agile methodology to put to work a database about EHR, ensuring the fidelity and secrecy of patient data. I was taking care to launch the access control on who can CRUD patient and medical workers data.
- The Etherum Smart Contracts needed were developed with Truffle framework, once ready deployment was done on Kovan Etherum testnet and IPFS.

FACIAL GESTURE-DRIVEN WHEEL CHAIR(2018)
OpenCV, CNN, Python, Arduino

- A special electric wheelchair was build for quadriplegic people using computer vision and deep learning (CNN).
- We used and trained a PyTorch image classifier, ResNet18. My main task was to deploy the firmware needed enabling the communication of the model and the electronics.

SEAHAWK: SECURITY FOR MAZATLAN'S BEACHES(2018) OpenCV, CNN, AWS, Python

- Project was a computer vision system able to recognize if people were too off the coast. Main idea was to help lifeguards in Mazatlan Beaches so we used a Mask-RCNN implemented on TensorFlow.
- My main task was to segment the video between beach, sea, and people, then with help of my team train the model on AWS instance. We won a hackathon with it.

A HAPTIC ROBOT ARM(2017) Robotics, Control Theory, MatLab, Arduino

- I was in charge of the firmware of a planar haptic robot arm to help kids with rehabilitation of their entire superior members. The robot was designed and manufactered with help of SolidWorks.
- I coded routines like circle movements to help them to improve, then retrieve data to measure how their improvement was. PID control and robotics calculations were done on MATLAB and Arduino.

SKILLS

Languages: C/C++, Python, SQL
Web Development: Django
Online Curses: Python
Hardware: Arduino, Raspberry Pi & Pico W

Databases: SQL Server, TinyDB
Technology: Git, LaTeX
Frameworks: Truffle
Other: PC Hardwre, Laser Cutting, Azure DevOps