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## EDUCATION

**MSc. Computer Science** Zapopan, Jalisco | Sep 2021
Centro de Investigación y Estudios Avanzados del IPN
**Coursework:** Software Engineering, Data Structures and Algorithms, Graph Theory, Distributed Systems, Cryptography, Computer Networks, Logic, Machine Learning, High Performance Computing.

**BSc. Biomedical Engineering** Mazatlán, Sinaloa | Dec 2018
Universidad Politécnica de Sinaloa
**Teacher Assistant(TA):** Biomedical Systems Development.
**Coursework:** Image Processing, Signal Processing, Analog Desing, Logic Desing, Databases, OOP.

## WORK EXPERIENCE

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

- Full teamwork activities to develop an enhancement for AD and V0 ALICE's detectors, the goal was to detect more particles.
- Measures were done to proof our proposed sensor could be used. Pure-teamwork between programmers, electronic engineers and physicists.

**UNIVERSIDAD AUTÓNOMA DE SINALOA** | Research Assistant (RA) Culiacán, Sinaloa | Sep 2018 - Oct 2018

- An electronic board with a 10-bits 1Gsps LVDS ADC was repaired.
- We developed the LVDS and HSMC protocol on FPGA to read data from the repaired board.

**CENTRO DE INVESTIGACIÓN Y ESTUDIOS AVANZADOS DEL IPN** | Research Assistant (RA) Zapopan, Jalisco | Nov 2017 - Dec 2017

- We developed the control for a haptic robot arm to help kids with rehabilitation of their entire superior members.

## MAJOR PROJECTS

**ELECTRONIC HEALTH RECORD SYSTEM(2020)** Blockchain, Solidity
Full teamwork activities to develop a database about EHR, ensuring the fidelity and secrecy of patient data. It has a hierarchy system about who can CRUD patient and medical workers data. My main task was to develope the Etherum Smart Contracts to achieve this feature.
ESC were developed in Solidity language with Truffle framework. The Kovan Etherum testnet and IPFS were used for backend deployment.

**FACIAL GESTURE-DRIVEN WHEEL CHAIR(2018)** Computer Vision, CNN, Python
A special electric wheelchair was developed for quadriplegic people using computer vision and deep learning (CNN). It was able to move with facial gestures like moving head in some directions.
We developed the entire dataset with face images. We used and trained a PyTorch image classifier, ResNet18, then we developed the electronics needed.

**SEAHAWK: SECURITY FOR MAZATLAN'S BEACHES(2018)** Computer Vision, CNN, Python
It was a computer vision system able to recognize if people were off the coast. The main idea was to help lifeguards in Mazatlan Beaches.
We used a Mask-RCNN implemented on TensorFlow. We segmented the video between beach, sea, and people, then train the model on AWS. We won a **hackathon** with it.

**A HAPTIC ROBOT ARM(2017)** Robotics, Control Theory, MatLab
We developed a haptic robot arm to help kids with rehabilitation of their entire superior members.
We designed and manufactured the robot with SolidWorks. We 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 implemented on MATLAB and Arduino.

# SKILLS

**Languages:** C/C++, CUDA, Python, MatLab, VHDL, Solidity
**Web Development:** HTML, CSS
**Online Curses:** Python, Web
**Hardware:** Arduino, Raspberry Pi, FPGA

**Databases:** SQL, TinyDB
**Technology:** Git, LaTeX, IPFS
**Frameworks:** Jekyll, Truffle
**Other:** ISE, ModelSim