Cesar A. Contreras

Mechatronics Engineer ● 830-623-7154 ● cesar.contrerasa@anahuac.mx
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Education

Universidad Anáhuac México Norte: **Huixquilucan, México**

- Bachelor of Science (B.S.) in Mechatronics Engineering – GPA: 9.20/10 — August 2016 – December 2020
- Industrial Automation Specialty — January 2019 - December 2020
- Automotive Mechanics Design Specialty — January 2019 - December 2020
- Entrepreneurship Specialty — January 2017 - December 2018

- Certifications:
- Application Track Universal Robots — June 2021
- Pro Track Universal Robots — June 2021
- Unity Junior Programmer — May 2021
- Core Track Universal Robots — November 2020
- KNX ETS5 — October 2020

Skills

Programming Languages: Python, C++, C, C#, HTML, CSS, JavaScript, MATLAB, Flutter, Assembly, VHDL, Arduino, PLC (LD, FBD, ST, IL) ...

Software: Altair Hypermesh, CIROS Studio, Factory I/O, FluidSIM, GOM Correlate, Proteus, PTC Creo Parametric, PyCharm, SolidWorks, Spyder, LabView, Mastercam, MATLAB, Microsoft Office Suite, Multisim, OrCAD, Polyscope for UR, Ubuntu, LOGO! by Siemens, ROS

Robots programming and simulation: Industrial applications with CIROS Studio for the optimization of times spent on a workcell using MRL and Polyscope. Cell simulations

Industrial Automation: Worked on industrial automation projects (pneumatics and electro-pneumatic systems) both with and without a PLC with the objective of reducing the time and cost of a process, simulated the systems using FluidSIM and Factory I/O and implemented some of them saving up to 30% of the time in some processes.

CAD and CAE: Worked in the design and simulation of some systems, including toys, furniture, tools and some mechanical parts and devices. Used SolidWorks and Creo Parametric for the design, simulation (Static and Dynamic) and optimization of the parts. Used Hypermesh for meshing and other simulations.

Computer Vision: Applied vision systems for color, object and human detection, to control and send data to a mobile robot, via Wi-Fi and serial communications. Used OpenCV, Python and MATLAB.

Electronics: Designed electronic schematics for small circuits, using software such as Proteus and OrCAD, prototyped some of the designs and their programming using microcontrollers, FPGAs, CPLDs and other devices. Worked in small applications such as basketball boards, Morse-code decoders, water level systems, auto positioning devices, HMI-controllers, monitoring systems.

Computer Graphics: Worked with computer graphics using OpenGL and C for art, math and animations. Worked in textures, lighting, and multiple viewports. Using Unity and Vuforia worked in the development of AR applications for lab and warehouse usage.

Game Design and Programming: Participated in the development of multiple casual and educational games using Unity and Android Studio.

Languages: English, Spanish, French (Basic)

Experience

Grupo Importadores **Mexico - USA**

Software Engineer March 2021 – Present
Server management, equipment diagnostics (mechanical, electronical), in-house software maintenance.

Automation and Manufacturing Lab Anáhuac México **Huixquilucan, México**

Trainee Robotics Engineer (Practicum) June 2020 – December 2020

Worked on a team of 4 in the development of a methodology for the implementation of ROS with existing lab equipment, allowing the development of future projects with the framework.
Performed different simulations of Robots using CIROS Studio, Gazebo, CoppeliaSim, MoveIt and MATLAB, connecting with the ROS frameworks, validating its functionality.

CADIT **Huixquilucan, México**

Technology and Innovation Engineer (Social Service) August 2019 – December 2020

Worked with dentists in the research of possible applications for the 3D printing of lower jaws and teeth using DICOM files, testing the prints in different materials and simulating them for possible prosthesis designs.
Custom automation and modification of 3D printing hardware to work with inhouse materials, saving the costs of acquiring new equipment.
Worked on a team in the documentation of the problem analysis and the presented solutions for the possibility of replicating and improving each solution.
Prototyping and testing of body equipment to improve and adapt the functionality of existing HMI technology.
Handled newly acquired equipment and components on a small team tasked with finding possible applications for them using quick prototyping techniques. The equipment included commercially available hardware and inhouse technology.

Automation and Manufacturing Lab Anáhuac México **Huixquilucan, México**

Mechatronics Student Club Captain (Volunteer) January 2019 – December 2020

Led a team of 6 and successfully worked on different time-based projects saving up to 15% of the time allocated for the projects, managing to reduce some final products cost by a 5 to 10%.
Identified multiple acceptable resolutions to engineering problems and worked on selecting the most efficient solution.

Developed CAD files for simple robotic models, electronical schematics for simulations, worked on the programming of embedded systems and successfully prototyped multiple projects to verify their viability.

Awards and Achievements

- ★ *Universidad Anáhuac Academic Excellence Award. 2020.*
- ★ *Gambas programming Award. 2017.*
- ★ *Anahuac's Best Student Scholarship (covering 90% of the tuition). 2016 – 2020.*
- ★ *Cumbres-Alpes Institute High School Valedictorian 2016.*
- ★ *ITPN XXVII Regional (Northern Coahuila and Southern Texas) Math Tournament First Place. 2016.*
- ★ *Rotary's District 4110 Interact Club Council Member Award. 2015.*
- ★ *ITPN XXVI Regional (Northern Coahuila and Southern Texas) Math Tournament First Place. 2015.*
- ★ *PIBA Math's Tournament second place award. 2014.*
- ★ *PIBA Best Short Film Script Award. 2014.*
- ★ *Intercollegiate Academic Tournament (TAI) 7th grade Math First Place. 2011.*