

Israel Macías Santana

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PROFILE

I am a senior student in Robotics and Digital Systems Engineering. I am a flexible, responsive and resilient person able to adapt to new work environments. My passion for art has led me to explore creative solutions to problems that I have been through.

My goal is to acquire new knowledge in the design of embedded systems or digital systems.

EDUCATION

❖ Instituto Tecnológico y de Estudios Superiores de Monterrey

Aug 2021 – Present

A great part of my studies were focused on the resolution of projects using systems on-chip, microcontrollers, digital electronics and control systems for the development of intelligent robot designs. I have presented a few embedded systems using an FPGA to INTEL and a DC motor control system using ROS to Manchester Robotics.

SCHOOL PROJECTS

❖ Advanced embedded vehicle steering control design

Oct 2023 – Dec 2023

Designed a vehicle steering control system for a toy car, simulating a steer by wire system. It included a mobile dashboard, and a vibrations frequency analyzer for disturbances.

- Communication Protocols: USART, IIC, CAN, SPI
- Sensors: Absolute Rotational Encoder, IMU
- Hardware: STM32, ESP32, Motor DC, Motor driver, CAN transceiver, MCP2515, OLED display
- Languages: Embedded C, MATLAB

❖ Electric Current Monitoring System

Mar 2023 – Jun 2023

Designed a system capable of monitoring the current consumption of any appliance to generate an approximate energy expenditure report.

- Communication Protocols: USART, Bluetooth
- Sensors: Analog Current Sensor,
- Hardware: ATMEL microcontroller, LCD display
- Languages: Embedded C

❖ Design with programmable logic

Feb 2023 – Mar 2023

Designed a system based on an FPGA to recreate an analog controller for a videogame.

- Communication Protocols: USART, Bluetooth
- Sensors: Analog Joystick
- Hardware: FPGA
- Languages: VHDL

SOCIAL SERVICE

❖ **Content Coordinator, Estratego CCA**

May 2022 – Feb 2023

I worked as coordinator in the content creation area for the basic programming, innovation and leadership classes at Estratego. Estratego was an association created by a group of friends to give free classes to children and co-workers at the community learning center at TEC Campus Santa Fe.

LANGUAGES

Spanish – Native Speaker

English – C1, TOEFL iBT: 99

<u>SOFT SKILLS</u>	<u>PROGRAMMING LANGUAGES</u>	<u>COMPUTER PACKAGES</u>	<u>DEVELOPMENT PLATFORMS</u>
Teamwork	C - Intermediate	Microsoft Office	FPGA
Critical thinking	C++ - Intermediate	Google Drive	STM32
Creativity	Python - Intermediate	Simulink	ATMEL
Self taught	MATLAB - Intermediate	ROS2	ESP32

EXTRA-CURRICULAR ACTIVITIES

- **Amateur Music Producer**

I write, produce, and mix my own songs. In 2020 I started to publish songs with introspective and delusional themes. In 2022 I made two professional productions and in 2023 released them in my first EP that included 5 songs.