

# JESUS MINJARES

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## EDUCATION

### Master of Science in Computer Engineering

*The University of Texas at El Paso (UTEP)*

**Awarded:** May 2022

GPA: 3.81/4.0

### Bachelor of Science in Electrical and Computer Engineering

*The University of Texas at El Paso (UTEP)*

**Awarded:** Dec. 2020

GPA: 3.23/4.0

### Associate of Science in Electrical Engineering

*El Paso Community College (EPCC)*

**Awarded:** May 2018

GPA: 3.86/4.0

## TECHNICAL EXPERIENCE

### Aerospace Center (cSETR)

El Paso, TX

#### Graduate Research Assistant

Aug. 2021 – May 2022

- Develop a 3U CubeSat with a multidisciplinary team of 5 members, leveraging strong collaboration and multi-tasking to meet deadlines
- Create firmware for 3 microcontrollers (MCUs) in C programming language
- Write python script to capture serial data and generate plots to analyze DC motor behavior
- Collaborate in designing custom hardware for space systems using Eagle
- Optimized API documentation through Doxygen to reduce software deployment by 15%
- Debug subsystems with an oscilloscope, digit multimeter (DMM) and function generator to verify functionality
- Introduce version control (Git) to provide simultaneous work and keep track of all updates

### Johns Hopkins University Applied Physics Laboratory (JHUAPL)

Laurel, MD

#### Electrical Engineer Summer Intern

May – Aug. 2021

- Developed and tested software at the physical layer using C, C++, and bash scripting to ensure highly reliable and efficient performance
- Redesigned docker file for a custom environment to use GNURadio and optimized software development by 20%
- Implemented algorithms for the IEEE802.11n protocol using C++ and OOP methodologies
- Learned version control software (Git) to update and keep track of software changes

### Aerospace Center (cSETR)

El Paso, TX

#### Graduate Research Assistant

Feb. 2021 – May 2021

- Delivered a custom electrical power system (EPS) to feed up to 3000 mA
- Added 1A lithium battery charger with battery protection to maximize battery duration
- Translated electric circuit into custom 2-layer printed circuit board (PCB) in KiCad
- Improved Helmholtz coil controller by adding multiple drivers (MOSFET and h-bridge) to control magnetic field magnitude and direction

## TECHNICAL PROJECTS

### Aerospace Center (cSETR)

El Paso, TX

#### Robotic Arm 3U CubeSat

Aug. 2021 – May 2022

- Design 3U CubeSat payload firmware in C for ARM Cortex M microcontroller
- Deploy custom Hardware Abstraction Layer (HAL) API to reduce software development of 6 teams by 30%
- Populated custom 2-layer print circuit boards (PCB) and ensure functionality with oscilloscope and DMM
- Implement payload communication protocols (I2C, SPI, UART) to communicate between CubeSats payloads

### UTEP

El Paso, TX

#### Intelligent Portable Infrasound Array (IPIA)

Jan. – Dec. 2020

- Delivered custom embedded software in real-time (FreeRTOS) to meet latency constraints of 10 ms
- Established data acquisition of pressure sensor (DS-0091) at 80Hz with digital filter to avoid aliasing
- Built short-distance wireless communication via Bluetooth (HC-05) by sending packets through UART
- Integrated custom GPS (SIM33EAU) API by parsing serial data with NMEA protocol
- Learned documentation system (Doxygen) to generate proper software documentation

## SKILLS

- Fluent oral and written skills in Spanish and English
- Extensive use of C, C++, ARM Cortex M microcontrollers, and Real-Time Operating System (RTOS)
- Proficient in Python, KiCad, EasyEDA, Eagle, Git, Oscilloscope, DMM, and Doxygen
- Basic knowledge of Rust, Docker, and Verilog
- Familiar with Java, Multisim, and Assembly Language