JESUS MINJARES

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EDUCATION

Master of Science in Artificial Intelligence — **Expected:** May 2027
The University of Texas at Austin (UT Austin) — GPA: 4.0/4.0

Master of Science in Computer Engineering — **Awarded:** May 2022
The University of Texas at El Paso (UTEP) — GPA: 3.81/4.0

Bachelor of Science in Electrical Engineering — **Awarded:** Dec. 2020
The University of Texas at El Paso (UTEP) — GPA: 3.23/4.0

TECHNICAL EXPERIENCE

Sandia National Laboratories — Albuquerque, NM
Embedded Software Engineer — Nov. 2022 – Present

- Upgraded NI 6509 driver with custom I²C bit-banging in C++ to integrate I²C device control into HWIL systems
- Led component test development to validate I/O behavior and ensure system functionality across multiple custom HWIL chassis
- Developed an FPGA-based IMU emulator in MATLAB/Simulink with custom 2400 Hz blocks and an SDLC-compliant bitstream
- Deployed GitLab Runner-based CI/CD to automate and validate embedded software releases
- Integrated dynamic JSON-based configuration for ESP32 using the cJSON API to manage sensor and network settings
- Enhanced firmware with new features for existing boards, maintaining backward compatibility to prolong hardware lifespan

Aerospace Center (cSETR) — El Paso, TX
Graduate Research Assistant — Aug. 2021 – Jun. 2022

- Led firmware development for a 3U CubeSat alongside a 5-member multidisciplinary team, meeting project deadlines through collaboration
- Programmed firmware for 3 microcontrollers (MCUs) in C programming language
- Automated data analysis by developing Python scripts to capture serial data and generate DC motor behavior plots
- Collaborated on custom hardware design for space systems using Eagle CAD
- Optimized API documentation with Doxygen, reducing software deployment time by 15%
- Debugged subsystems using an oscilloscope, digital multimeter (DMM) and function generator to ensure functionality
- Introduced Git version control, enabling simultaneous collaboration and project tracking

Johns Hopkins University Applied Physics Laboratory (JHUAPL) — Laurel, MD
Software Engineer Summer Intern — May – Aug. 2021

- Developed and tested physical layer software in C, C++, and Bash to ensure highly reliable performance
- Redesigned Docker environments, optimizing GNURadio workflow and boosting software deployment by 20%
- Implemented algorithms for IEEE802.11n using C++ and object-oriented programming
- Gained proficiency in Git for version control and project updates

TECHNICAL PROJECTS

Aerospace Center (cSETR) — El Paso, TX
Robotic Arm 3U CubeSat — Aug. 2021 – Jun. 2022

- Developed CubeSat firmware in C for ARM Cortex M microcontrollers
- Built a custom Hardware Abstraction Layer (HAL) API, reducing development time for 6 teams by 30%
- Populated custom 2-layer printed circuit boards (PCB) using oscilloscope and digital multimeter (DMM)
- Implemented communication protocols (I2C, SPI, UART) for CubeSat subsystems

UTEP — El Paso, TX
Intelligent Portable Infrasound Array (IPIA) — Jan. – Dec. 2020

- Delivered real-time embedded software using FreeRTOS to meet 10 ms latency requirements
- Acquired 80Hz data from pressure sensors and applied digital filtering to prevent aliasing
- Developed Bluetooth communication (HC-05) via UART for short-distance data transmission
- Integrated a GPS API by parsing NMEA data streams from SIM33EAU modules

SKILLS

- Fluent oral and written skills in Spanish and English
- Extensive use of C, C++, ARM Cortex M microcontrollers, Git, and FreeRTOS
- Proficient in Python, MATLAB/Simulink, CMake, KiCad, Eagle, CI/CD and Doxygen
- Working knowledge of Rust, Docker, and Verilog
- Familiar with Java, Multisim, and Assembly
- Hands-on experience with oscilloscope, DMMs, function generators, and PCB design/debugging