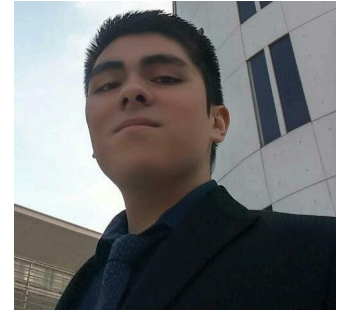


Jesus Alexander Gomez Gomez

alexandergmzx.github.io

SUMMARY:

Embedded Systems Engineer with 3+ years of professional experience in real-time systems, embedded C/C++ development, and cross-functional team collaboration across multiple international projects.



WORK EXPERIENCE:

Embedded Software Developer II, Dextra Technologies, a Deloitte Consulting Business

January 2022 to July 2024 | Monterrey, Mexico

Verizon Connect Project (2023 to 2024)

- Developed and maintained Pomulator, a system to emulate car trips, with micro-applications to enhance data availability for high-level of abstraction (Android) testing.
- Utilized Git and Yocto, coding in C++ with multi-thread focus and Bash shell scripting.
- Implemented diagnostics using CAN, enabling the retrieval of crucial data, enhancing the information available to users.
- Collaborated remotely with the team in Dublin, Ireland.

Continental Project (2022 to 2023)

- Develop and maintain the diagnostics modules in the C-language coded Real Time System of the car Body Control Module. Translated requirements into source code and tested it with unit tests and on the physical bench.
- Collaborated with cross-functional teams in America, England, Germany, India and Poland.
- Supported the whole team's upgrade to Git repositories.
- Reproduced & debugged issues and performed manual sanity tests on a physical bench tester.

Software Developer I | Amdocs Ltd.

January 2021 – January 2022 | Zapopan, Mexico

AT&T Mexico Project (2021 to 2022)

- Analyzed, supported, and maintained backend telecom services using Unix shell, Python, and C/C++ programming
- Debugged with GDB to check memory faults
- Followed SCRUM methodologies for project management
- Worked closely with clients and teammates to deliver high-quality products and ensure client satisfaction

EDUCATION:

Diploma in Embedded Linux, Universidad de Guadalajara,

Completed in May 2023, Jalisco, Mexico

Bachelor of Engineering in Digital Systems and Robotics, Tecnologico de Monterrey,

Completed in December 2019, Mexico City, Mexico

Student Exchange Program: Space Systems Engineering & Embedded Systems, TU Graz,

Completed in June 2018, Styria, Austria

ACADEMIC PROJECTS:

Delta robot parallel manipulator development

July 2025

- Programmed a Delta robot parallel manipulator using a microcontroller and ROS2 Jazzy, implementing forward and inverse kinematics algorithms for the 3-DOF parallel mechanism with coordinated multi-axis movement and real-time motion control during RWTH Aachen & Universal Robots Executive Certificate program.

Furuta pendulum development

August to December 2019

- Designed and implemented a self-balancing inverted pendulum using Arduino microcontroller with PID control algorithms, rotary encoders for position feedback, and PWM-controlled DC motor for real-time stabilization

Hostile Rescue Zone Detection Using SLAM (Simultaneous Localization And Mapping)

August to December 2019

- Hardware adaptation, disk imaging, modeling, and ROS2 programming of a mobile robot for detection of a closed environment

Mexican Sign Language Recognition with Computer Vision (OpenCV) and Artificial Intelligence (Keras)

February to May 2019

- Researched, modeled, and trained an AI for recognizing the hand sign alphabet in LSM (Mexican Sign Language) with a camera in real time

Inverse Kinematics Quadruped Robot Development

September to December 2018

- CAD physical design, Printed Circuit Board design, mathematical modeling, building, and programming of an obstacle-avoiding robot

Temperature Control System Development

March to May 2018

- Designed and implemented a closed-loop temperature regulation system using MOSFET-based heating, precision temperature sensors, and PID control firmware achieving sub-degree accuracy during exchange program at TU Graz

Mini-Robotics Club Team – Software Development

January 2015 to May 2016

- System modeling, prototyping, and testing of line follower contest robots.

Society of Robotics Engineering Students (SEIR) – President

August 2014 to May 2017

- Team management, project scheduling, motivation, and organization of university tech events

PERSONAL PROJECTS:

October 2025: "Billy Mouth" – Self text-to-speech-to-movements system for an animatronic

November 2022: Automation with a camera and servo motors for automated tests

June 2020: Bare-Metal STM32 Driver Development Tutorial (github.com/alexandergmzx/handmade_drivers_on_baremetal) - Developed custom peripheral drivers (GPIO, UART, serial display) from register-level programming without HAL libraries, demonstrating hardware abstraction and low-level embedded systems fundamentals

March 2020: "Saving Lives" – International IEEE team project where I developed a system using an oximeter to treat COVID-19

January 2018: Ground-up development for an open-source smartwatch with Wi-Fi and various sensors to monitor students' mood

July 2016: Modernized a 1987 Chevrolet Camaro to listen to voice orders with an Android app

TECHNICAL SKILLS:

Embedded Systems: RTOS Development, Embedded Linux, Real-Time Systems

Robotics: ROS2, SLAM, Inverse Kinematics

Hardware: CAN Bus, Microcontrollers, Sensors, AC/DC Motors, Ethernet

Testing and Debugging: GDB, Unit Testing, Bench Testing

Development Tools: Yocto, LabVIEW, Cadence PSpice, Siemens TIA Portal, MathWorks Matlab, Simulink

Methodologies: SCRUM, Agile

CERTIFICATIONS:

C++ (Data structures specialization by the University of Illinois Urbana-Champaign)

ROS2 (RWTH Executive certificate)

Embedded Linux (Universidad de Guadalajara)

Python (Google IT Automation with Python Professional Certificate)

Git (Open Source Software Development, Linux and Git Specialization by The Linux Foundation)

LabVIEW Associate Developer (ITESM)

LANGUAGES

Spanish (Native)

English (IELTS C1)

German (A2)

INTERESTS

Sports: Water Polo, Basketball, Association Football