



Mario Padilla Franco

Software Engineer focused on AI & Robotics

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Professional Profile

Software Engineer focused on AI and robotics, with professional experience building, evaluating, integrating and deploying production systems in conversational AI, robotics and industrial automation. Hands-on experience with Python, C++, TypeScript/JavaScript, Linux, ROS 2, Docker, APIs, AI evaluation and QA, system integration, commissioning, networking and multidisciplinary troubleshooting.

Professional Experience

AI Engineer

HubTalk

Feb 2026 - Present

- Design and deploy production voice and chat AI agents, translating business requirements into conversational flows, prompts, variables, guardrails and knowledge behavior.
- Built and validated 10+ production-ready conversational AI agents across multiple client use cases, from initial requirements through testing and deployment.
- Define and execute structured AI evaluation and QA workflows, including stress testing, edge cases, regression validation and evidence capture.
- Develop internal tools and reusable testing methods for agent validation, dynamic-variable checks, call testing and quality-assurance workflows.
- Support production integrations and troubleshoot APIs, webhooks, SIP/VoIP, call routing and runtime issues across voice-AI deployments.

Application Engineer

GUREGO

May 2023 - Jan 2026

- Integrated and commissioned robotic and industrial automation systems combining robots, AMRs, PLC-controlled equipment, machine vision and production-cell hardware.
- Programmed and commissioned 10+ industrial and collaborative robots for palletizing, welding, pick-and-place, screwdriving, polishing and quality-inspection applications.
- Developed and tested robotic applications in Python and C++, using simulation and offline validation before deployment on physical systems.
- Used robot simulation and robotics software for trajectory validation, offline testing and application development before deployment on physical systems.
- Implemented machine-vision, robotic-perception and mobile-robot solutions for guidance, inspection and intralogistics applications.
- Performed on-site commissioning, production start-up and multidisciplinary troubleshooting across robot motion, PLC/I/O, sensors, tooling, networking, safety and application logic.

Assembly Engineer

Alliance Automation

Apr 2022 - Mar 2023

- Built and integrated custom industrial automation equipment from mechanical drawings, electrical schematics and engineering documentation.
- Assembled conveyors, palletizers, sorting systems, robotic subsystems and motion-control assemblies for automated production lines.
- Installed and integrated sensors, actuators, motors, control panels, safety devices and industrial wiring across custom machinery.
- Performed system testing, calibration and pre-commissioning while diagnosing mechanical, electrical and integration issues before equipment handoff.

Education

2026 - Present

MSc in Computer Science and Technology

Universidad Carlos III de Madrid

Current postgraduate studies in advanced computer science and emerging technologies.

2024 - 2025

Professional Master's Degree in Robotics

TECH Universidad

University-specific degree (Titulo Propio)

2017 - 2021

Bachelor's Degree in Mechatronics Engineering

Universidad Iberoamericana

Graduated with honors for academic excellence.

Certifications

IBM Full Stack Software Developer Professional Certificate

IBM, In progress

DevOps Basics for Everyone · IBM, May 2025

Crash Course on Python · Google, 2024

Languages

Spanish: Native · English: C1 Advanced
- EF SET certified

- Worked across mechanical and electrical disciplines to support the build and preparation of production automation systems for commissioning.

Automation Engineer

Aug 2021 - Apr 2022

Parque Tecnológico Iberoingenio

- Supported the deployment and operation of an Industry 4.0 laboratory integrating robots, PLC-controlled systems, remote I/O, sensors and industrial safety hardware.
- Configured and integrated automation components through industrial I/O for robotics and advanced-manufacturing applications.
- Performed system testing, validation and troubleshooting across sensors, controls, connectivity and automation hardware.
- Prepared technical documentation and operating information for integrated laboratory equipment and technology demonstrations.
- Supported robotics and advanced-manufacturing demonstrations, including participation in Hannover Messe León 2021.

Selected Projects

Industrial Palletizing Automation

[Doosan](#) · [Robotics](#) · [Palletizing](#) · [Automation](#)

- Developed configurable pallet patterns, frame-based pick/place positions and dynamic approach/retract poses for a Doosan robot cell.
- Implemented vacuum/tool-state handling, recovery sequences, continuity counters and motion safeguards for production reliability.

Conversational Agent Engineering (CAE) Framework

[OpenAI API](#) · [Cekura](#) · [Retell](#) · [LiveKit](#) · [LLM Agents](#) · [Voice AI](#)

- Structured business requirements into reusable conversation architectures, prompt patterns, routing rules and variable models.
- Defined QA processes, quality metrics and failure analysis covering edge cases, adversarial scenarios and regression testing.

Study Copilot - Lecture Transcription & Notes Pipeline

[Next.js](#) · [TypeScript](#) · [Python](#) · [Supabase](#) · [Whisper](#) · [FFmpeg](#) · [OpenAI API](#)

- Built a Next.js/TypeScript interface and Python workers for audio/PDF processing, Whisper transcription and structured note generation.
- Used Supabase for queue and state management, private result storage, job claiming and failure handling.

Industrial Robot Programming & Commissioning

[Robotics](#) · [Commissioning](#) · [Welding](#) · [Pick-and-Place](#) · [Screwdriving](#) · [Polishing](#)

- Programmed and commissioned 10+ industrial and collaborative robots for welding, pick-and-place, screwdriving, polishing, palletizing and quality inspection.
- Performed robot configuration, tool and frame setup, I/O integration, motion validation, start-up and troubleshooting for automotive and consumer-goods customers.

Doosan ROS 2 Motion Planning Lab

[ROS 2 Jazzy](#) · [Python](#) · [C++](#) · [Docker](#) · [MoveIt 2](#) · [RViz 2](#) · [Gazebo](#) · [Doosan](#)

- Built a Docker-based ROS 2 Jazzy simulation environment for a Doosan M1013 robot on Ubuntu 24.04.
- Worked with modular motion execution, robot abstraction and planning/visualization using MoveIt 2, RViz 2 and Gazebo.

Technical Skills

Software Development

[Python](#) · [C++](#) · [TypeScript](#) · [JavaScript](#) · [React](#) · [Next.js](#) · [Node.js](#) · [Express](#) · [REST APIs](#) · [SQL](#) · [Git](#) / [GitHub](#) · [Docker](#)

Robotics & Simulation

[ROS 2](#) · [MoveIt 2](#) · [RViz](#) · [Gazebo](#) · [Webots](#) · [RoboDK](#) · [Doosan Robotics](#) / [DRL](#) · [Universal Robots](#) · [MiR AMRs](#) · [Robot Programming](#) · [Motion Planning](#)

Computer Vision & Industrial Perception

[OpenCV](#) · [Mech-Mind](#) · [SICK](#) · [Cognex](#) · [SOLOMON AI](#) · [Vision-Guided Robotics](#) · [Quality Inspection](#)

AI & Voice Systems

[Conversational AI](#) · [Voice AI Agents](#) · [LLM Agent Architecture](#) · [Conversation Flow Design](#) · [Prompt Engineering](#) · [LLM Guardrails](#) · [Structured Data Extraction](#) · [AI Evaluation & QA](#)

Automation & Controls

[Siemens TIA Portal](#) · [Studio5000](#) · [PLC Integration](#) · [Industrial I/O](#) · [Sensors & Actuators](#) · [Safety Systems](#) · [Control Panels](#) · [Production Troubleshooting](#)

Networking & Voice Infrastructure

[SIP](#) / [VoIP](#) · [FusionPBX](#) · [Network Diagnostics](#) · [Linux Networking](#) · [TCP/IP Fundamentals](#) · [REST APIs](#) / [Webhooks](#)