Jorge Benavides Macías

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Junior Embedded Engineer passionate about contributing to end-to-end embedded development. Skilled in microcontroller programming (STM32, ESP32), PCB design (Altium/Eagle), and IoT prototyping. Eager to grow within collaborative teams on projects spanning hardware/software co-design, testing, and deployment.

Work Experience

Junior Cybersecurity & Microelectronics Engineer Jul. 2024 – Present
Fundación Innova IRV *Malaga, Spain*

- Spearheaded cybersecurity needs assessments for 15+ Andalusian tech companies via executive/CISO interviews, identifying critical gaps in network security, access control, and incident response.
- Authored 250-page technical report with prioritized countermeasures adopted as regional cybersecurity roadmap by Andalusia's **Consejería de Industria, Energía y Minas**.
- Managed full project lifecycle (€600k budget) for *Impulso&Crece2024* digitalization initiative funded by regional authorities, coordinating cross-functional teams for SME cybersecurity upgrades.

R&D Jr. Electronic Engineer Mar. 2024 – Jul. 2024
Quandum AeroSpace S.L. *Malaga, Spain*

- Designed a 15W wireless charging system for vertical wind turbines using Altium, reducing component count by 30%.
- Implemented RTOS-based motor control on ESP32.
- Collaborated on mechanical design (CATIA), PLC automation, and Linux-based version control system administration.

Jr. Electronic Engineer Sept. 2023 – Mar. 2024
DHV Technology *Malaga, Spain*

- Designed solar panels for space applications using SolidWorks (3D modeling) and Altium (PCB design).

Projects

PCB Design for Robotic Gripper | *C, ARM, PSoC, LabView, Eagle* | DOI

- Designed and fabricated a PCB for data acquisition from resistive tactile sensors integrated into a robotic manipulator's gripper. This involved full process design, including component selection, material procurement, and PCB trace routing, incorporating a PSoC in a QFN package.
- Developed a master-slave architecture in C for ARM, collecting data from multiple sensors via SPI and UART communication, with debugging facilitated by LabView.

LaCaja | *C, MQTT, MongoDB, JavaScript, HTML, CSS, NodeRED* | News - Web - Repository

- Earned the opportunity to visit Google's Malaga offices and present the project.
- Crafted an AI-driven escape room experience featuring "Chiquito de la Calzada", offering participants a chance to win a position at Google.
- Designed 2/5 games (software & hardware), managing PCB soldering and sensor connections.

Digital Design | *VHDL, git* | Repository

- Proficient in designing, simulating, and synthesising digital circuits using VHDL.
- Developed diverse testbenches, from debouncers to factorial calculation systems, and integrated MicroBlaze IP core into a Mastermind-like game.

Education

University of Malaga Malaga, Spain
Master's Degree in electronic systems for smart environments *Sep. 2024 – Present*

University of Malaga Malaga, Spain
Bachelor in electronics, robotics & mechatronics. Major in robotics & automation *Sept. 2018 – Sept. 2023*

Technical Skills

Languages: Spanish (native), English proficient (B1)
Embedded Systems: STM32, ESP32, AVR, RTOS, PCB Design (Altium/Eagle) and 3D CAD Model (CATIA, SolidWorks)
Programming: C/C++, Python, Bash, VHDL
Tools: Git, Docker, Vivado, LabVIEW, MATLAB, Emacs