MARIA PAULA CARRENO FERNANDEZ

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https://mpcarreno.github.io/

PROFILE

Electronics Engineer with research interests in Signal Processing, Digital Health Systems, IoT, Wireless Networks, and Network Security.

EDUCATION

Bachelor of Science in Electronics Engineering, Pontificia Universidad Javeriana   Sept 2023
GPA: 4.1/5.0
Awards: Granted a full scholarship, Thesis Honorable Mention
Relevant Courses: Signal processing (4.2/5.0), FPGA Design (5.0/5.0), IoT Systems (4.6/5.0), Control Systems (4.2/5.0)

RESEARCH EXPERIENCE

Thesis: Cooperative Successive Interference Cancellation in Downlink Cellular Networks
Research of a NOMA Technique in a cooperative scheme using Successive Interference Cancellation to improve the sum rate of Downlink communications in multi-cell cellular network.View more

Skills: Matlab, Python, Wireless Networks, Stochastic Processes and Information Theory

Early Warning System
Developed a sensor system to monitor Strain, Current, and Angle, providing early warnings for deviations. Signals are conditioned with analog and digital filters via a PIC18F47 microcontroller (dynamic range 60 dB, bandwidth 120 Hz) and continuously compared to predefined thresholds. Detected anomalies trigger alerts and can be monitored via a web interface.View more

Skills: PCB Design, Assembly, C, Python, TypeScript, Altium, OrCAD, LabView and Signal processing.

PLUMABot
Design of a open-Source 2DoF planar low cost robot controlled using Python based on given Blender coordinate points. Automation of Path Planning and implementation of Inverse and Forward Dynamics and Kinematics using Matlab. View more

Skills: C, C++ Bash, Matlab, Python, Arduino, Control Systems

PONG game FPGA implementation
Design and implementation retro game PONG using FPGA Altera DEO cyclone III and matrix numeric keypad. View more

Skills: FPGA, Altera Quartus, VHDL

ADDITIONAL EXPERIENCE

Cyber Security Operations Center Analyst   Jan 2023 - Aug 2025
SLB (Fortune 500 company)   *Bogotá, Colombia*

PERSONAL PROJECTS

EAD3 Expo App implementation
Cross-platform application to optimize the clinical administration of the Abbreviated Development Scale (EAD-3). Designed to accelerate assessments, reduce manual scoring errors, enable reliable standardized developmental screening and support scalable longitudinal analysis of pediatric development.View more

knowledge: Typescript, React Native, Expo

CERTIFICATIONS

BTL1 - Blue Team Level 1	December 2024
SC-900 - Security, Compliance, and Identity Fundamentals	May 2024
AZ-900 - Azure Fundamentals	February 2024

COURSES

SANS FOR508 - Advanced Incident Response, Threat Hunting, and Digital Forensics	May 2025

SKILLS

Technical Knowledge: Signal Processing (filtering, noise reduction, threshold-based detection), Wireless and Computer Networks, IoT and Embedded Systems, Digital Health Systems, Sensor-Based Monitoring, Cybersecurity Fundamentals, Email Security.

Research & Engineering Skills: Experimental evaluation and system validation, Data analysis and outcome characterization, Longitudinal data collection and analysis, Threat analysis, Security solution assessment, Technical documentation and research reporting.

Tools & Platforms: Splunk, Microsoft Sentinel, Wazuh, Chronicle, Wireshark, Nmap, Proofpoint, Palo Alto Networks, MISP, Altium, OrCAD, LabVIEW, Microsoft Azure, AWS, Google Cloud, Terraform, Git.

Programming & Description Languages: Python, MATLAB, TypeScript, Bash, PowerShell, C/C++, VHDL.

LANGUAGES

Spanish - Native
English - C1