

# Sergio Garduño Jardón

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## Profile

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Application/Mission focused on engineering and ecology; Experience in **IoT, Electronics, and Environmental Analysis**, integrating hardware, software, and data management; Development of solutions based on **ESP32**, automation with **Python and C++**, and environmental monitoring with **Google Apps Script**. My approach combines engineering and ecology, aiming to create technologies applied to sustainable development.

## Academic Background

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### Mechatronics Engineering — UPIITA, Instituto Politécnico Nacional (CDMX) 2020–2026

- **Specialization in Sustainability and Intelligent Systems:** Design and development of monitoring and control systems; Expertise in embedded systems, advanced microcontroller programming (ESP32), and data pipelines.
- **IoT Project:** Environmental monitoring system for green roofs with multiple sensors and energy autonomy; Integration of electronics, programming, and renewable energy.

### Technician in Business Administration — CECyT 13 "Ricardo Flores Magón" 2015–2018

- **Management and Business Strategy:** Proficiency in market analysis application (SWOT), resource planning (ERP/MRP), and optimization of production processes to increase operational efficiency.
- **Commercial and Financial Skills:** Competency in basic accounting management, budgeting, and business plan development.

## Professional Experience

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**Robodacta (2022–2023)** Educational kit development and commercial management.

- Designed electronic kits, packaging, and didactic materials.
- Created online courses and audiovisual content.
- Managed physical, online sales, and digital advertising.

**Metamorfoziz — Integral Advertising (2021–2022)** Design and management of advertising projects.

- Created banners, signage, and printed materials.
- Managed B2B sales and customer service.
- Designed and produced visual campaigns.

**Independent Technical Service (2018–2020)** Owner and operator of a mobile phone and electronic device repair business.

- Performed diagnosis, repair, and procurement of spare parts.
- Managed customer relations and inventory control.

## Featured Projects

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**Eco Gaia SOS Platform** Web platform for compiling and disseminating environmental calls and projects.

- Developed web-based data management system for local environmental actors.
- Facilitated data visualization and stakeholder coordination support.

**IoT Green Roof System (Thesis)** Autonomous environmental monitoring prototype validated in the field.

- Designed hardware and software pipeline using ESP32 and specialized sensors for thermal analysis.
- Integrated solar panels and battery systems to achieve full energy autonomy.
- Validated thermal reduction performance metrics for extensive green roofs.

## Technical Skills

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- **Programming & Data:** Python (Pandas/Analysis), C++/Arduino, Google Apps Script, SQL & Google Sheets.
- **Hardware & IoT:** ESP32 Microcontrollers, Sensor Integration (Thermal, Environmental), PCB Design (Basic), Solar Power Systems & Battery Management.
- **Software/Tools:** MATLAB (Basic), AutoCAD (Basic), Microsoft Office/Google Workspace.

## Achievements and Certifications

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### Key Achievements

- IoT prototype validated in the field for autonomous thermal and energetic monitoring.
- Technical participation scheduled for the National Biotechnology Congress (Oaxaca, 2025).
- Successfully implemented the Eco Gaia SOS platform, tracking visit and consultation growth.

### Courses and Certifications

- Seminar: Design of manufacturing automation and integration of programmable devices.
- Course/Self-study: Python for data analysis (Pandas) — practical projects.
- Certification in progress: English B2.