

# JOEL GARCIA MARTIN

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## EDUCATION

**Universitat Politècnica de Catalunya (UPC)** | Terrassa, Spain | *Bachelor's degree in Aerospace Vehicle Engineering* | Sept 2022 – Present (Expected June 2026)

- **Cumulative GPA:** 7.26/10 (Spanish Grading Scale)
- **Relevant Coursework:** Space Systems Engineering, Control Theory, Orbital Mechanics, Software Engineering, Aerodynamics, Physics, UAVs, Fluid Mechanics, Theory of Structures.

## RESEARCH & PROFESSIONAL EXPERIENCE

**SEAT S.A. (Volkswagen Group)** | Martorell, Spain | *R&D Intern, Production Development & Digital Solutions* | Oct 2025 – Present

- **Implementing** digital transformation initiatives within the factory, utilizing AI and low-code architectures to optimize production in the factory.
- **Prototyping** hardware/software solutions for industrial environments using a "fail-fast" agile methodology to validate new technologies.
- Conducting and applying research on state-of-the-art industrial digitization to improve component tracking and system efficiency.

**UPC Space Program: GRASS Rover Team** | Terrassa, Spain | *Mission Manager* | Oct 2025 – Present

- **Leading** a team of **30+ engineers** and scientists competing in the European Rover Challenge (ERC).
- Overseeing full systems integration, project timeline management, and the production of technical and scientific reporting.

*Software Lead & Developer* | Sept 2022 – Oct 2025

- **Architected** the rover's autonomous navigation stack using **ROS** (Robot Operating System) and Python. Developed a custom Telemetry & Diagnostic System and a Flask-based Graphical User Interface (GUI) for remote mission control and Implemented firmware for actuators and sensors for the rover to be used in Mars-analog environments.

**MIT Edgerton Center** | Barcelona, Spain & Boston, MA (Hybrid) | *Senior Engineering Mentor – International Outreach* | 2022 – Present

- **Mentoring** international engineering design workshops in Spain, Italy, Mexico, and the US, by guiding high school students through the full product lifecycle from ideation to functional prototyping.
- Teaching hands-on skills in electronics (Arduino), coding, and fabrication, embodying the MIT "Mens et Manus" philosophy.
- Mentored student teams to build prototypes, including remote-controlled vehicles and fluid systems, within a 3-day deadline.

## CONFERENCE PRESENTATIONS

- **Presentation on How Students Can Lead Their Own Education** | AAPT Summer Meeting 2024 | [Link](#)
- **Poster Presentation: Propelling into our Future** | AAPT Summer Meeting 2024 | [Link](#)

## TECHNICAL SKILLS

- **Programming:** Python, C/C++, SQL, JavaScript, HTML/CSS.
- **Software & Tools:** ROS / ROS 2, Docker, Ansible, Git/GitHub, Fusion360 (CAD), LaTeX, Figma, Power BI, Notion.
- **Hardware:** Arduino/Microcontrollers, PCB Design, Soldering, 3D Printing, Rapid Prototyping.
- **Languages:** Spanish (Native), Catalan (Native), English (Fluent, TOEFL Score of 108/120), French (Basic).
- Proficient with Power Drills, Drill Presses, Table Saws, Band Saws, Grinders, and Hand Tools.

## PROJECTS

### **Shaking Hands Overseas** | *MIT Engineering Design Workshop 2021*

- Built a 3D-printed biomechanical hand controlled remotely via API.
- Engineered a sensor glove (using Python/Arduino) to capture hand movements and replicate them on the robotic hand across ocean distances in real-time with the collaboration of Lucas VRTech.

### **Large-Scale Haptic Floor Instrument** | *MIT Engineering Design Workshop 2022*

- Designed, prototyped and constructed a walkable musical interface using sensors and microcontrollers, considering the possible wear over time.
- Programmed the backend logic to convert physical steps into audio output for an interactive user experience.

## CERTIFICATIONS & AWARDS

- **CS50AI:** Introduction to Artificial Intelligence with Python (Harvard University/edX)
- **CS50:** Introduction to Computer Science (Harvard University/edX)
- **Hackathons:** 8x Participant/Mentor in MIT & UPC Hackathons (2019–2026)
- **ERC Space & Robotics Industry Standard:** 3x Awarded by the European Space Foundation for reaching the European Rover Challenge Finals (2023-2025)