Franco Castro Chaves

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Objective

I am passionate about working on technological projects that integrate engineering and innovation to create impactful solutions. I am always eager to learn and improve my skills, adapting to new challenges with creativity and resilience. Currently, I am seeking an opportunity to enter the job market where I can contribute my knowledge and experience while continuing to grow professionally.

Education

University of Costa Rica, Bachelor's degree in Electrical Engineering. Specialization in Electronics and Telecomunications. Mar 2020 – Jun 2025

University of Costa Rica, Licentiate degree in Electrical Engineering. Specialization in Communication systems. Jun 2024 – Present

- **Coursework:** Artificial intelligence, Internet of Things, Information technology, Pure mathematics
- **GPA:** 8.94/10.

Academic Assistant and Laboratories Experience

University Social Service Assistant, School of Electrical Engineering – University of Costa Rica, San José Mar 2025 – Jun 2025
Led projects integrating technology into developing tropical societies to contribute to their comprehensive and sustainable development.

Communications Engineering Assistant, School of Electrical Engineering – University of Costa Rica, San José Mar 2025 – Jun 2025
Assisted in the Communications Engineering course, including grading, student support, and final project implementation.

Metrology Engineer and Testing Designer, Costa Rican Metrology Laboratory – University of Costa Rica, San José Feb 2024 – Nov 2024
Worked with ISO standards for equipment calibration, precise measurements, and ensured reliability and accuracy in testing procedures.

Prototyping Engineer, Electrizarte – University of Costa Rica, San José Feb 2024 – Jun 2025
Developed prototypes combining art and technology for social impact projects.

Researcher and Assistant, Biomedical Engineering Research Laboratory – University of Costa Rica, San José Jul 2022 – Dec 2024
Developed an algorithm optimizing economic resources and processing time for metastasis detection using biomedical photoacoustic imaging and contrast agents.

Languages

Spanish: Native.
English: Medium-Advanced (B2).
TOEIC, Costa Rican-North American Cultural Center. Intermediate B2 level (Dec 2019).
English Test, Duolingo. Upper Intermediate: CEFR B2+ (Dec 2024), Score: 120/160.

Soft Skills

I consider myself a person with excellent assertive communication skills, highly creative in problem-solving, extremely organized, and proficient in time management, all of which have been strengthened through resilience. I am always eager to learn and enjoy working in collaborative environments. I also know when to take on a leadership role or contribute as a team member, adapting to the needs of the group

Technical Skills Acquired through Experience in Courses and Projects

Operating Systems: Windows, Linux (Ubuntu)

Programming: Python, C, Arduino, Processing, MIPS Assembly, Matlab, Verilog

Data Management: Excel, MySQL, Pandas, Matplotlib

Software: AutoCAD, SolidWorks, Simulink, Node-RED, ContikiOS, circuit simulation software (Tina, orCAD, PLECS, Gecko Circuits, etc.), Cisco Packet Tracer, Trello, FreeCAD, Power BI, PowerPoint

Hardware: ESP32, Raspberry Pi, Arduino

Document Writing: Word, LaTeX

Version Control: Git, GitHub

Networking: HTTP, MQTT, WebSocket

Additional skills: ISO norms (ISO 12311:2013, ISO 12312-2:2015, ISO 12311:2023, ISO 18526), biomedical imaging (ultrasound imaging, photoacoustic imaging, and development of synthetic tissues), deep understanding of mathematical proofs (real analysis and abstract algebra).

Certificates

LaTeX Workshop, University of Costa Rica. Acquired advanced skills in document preparation for academic and professional purposes — Feb 2022

Medical Innovation Workshop, Rice University. Introduction to biomedical engineering prototyping. — Jun 2023

Need Finding Workshop, Rice University. Ethnography for problem solving. — Jun 2023

Projects

Line Follower Robot — Mar 2025 – Jun 2025
Led a team in building a robot that follows a line using a control system for social impact purposes. **Technologies:** Arduino Nano, 28BYJ-48 stepper motor, ULN2003 Darlington array, 60048 infrared sensor, FreeCAD, Excel, PID control.

Implementation of the 3R Rule in Rural Communities of Costa Rica — May 2024 – Mar 2025
Led a team in a project to recycle, reduce, and reuse solid waste such as cardboard, aluminum, plastic, and glass through low-cost implementations. **Technologies:** Excel, FreeCAD, 3D printers.

Testing and Standardization of Eclipse Observation Glasses in Costa Rica — Feb 2024 – Dec 2024
Conducted tests to establish a national standard for verifying the safety of eclipse observation glasses, ensuring compliance with ISO 12312-2:2015. **Technologies:** Cary 5000 UV-VIS-NIR spectrophotometer, Excel, solar filters.

Automated Speed Violator Detection System — Jun 2024 – Dec 2024
Led the development of an automated vehicle detection prototype that identifies vehicles exceeding speed limits using IoT.
Technologies: Pressure sensors, ESP32, MQTT, BLE, HTTPS, WebSocket, Python, MySQL.

Network Infrastructure Design — Dec 2023 – Feb 2024
Designed a network infrastructure for an engineering office building.
Technologies: Cisco Packet Tracer, Excel, PowerPoint.

Optimization of Metastasis Detection Using Photoacoustic Imaging — Jul 2022 – Present
Developed an algorithm to optimize economic resources and image acquisition time for metastasis detection using photoacoustic imaging and contrast agents.
Technologies: MATLAB, gold nanoparticles, gelatin-based phantoms.

Automated Security Box for Biomedical Imaging — Feb 2022 – Jun 2022
Designed and built a closed black box for ocular protection that automatically captures biomedical images of samples using a CNC device.
Technologies: AutoCAD, Excel, MATLAB, Python, CNC, ESP32, MQTT.