Rodrigo Cortés Sánchez

- BSc. Mechatronics Engineering
- Software Engineer

rodrigo.cortess@outlook.com
(+34) 623 27 43 92
Valladolid 2, 08014 Barcelona, Spain

www.linkedin.com/in/rodrigo-cortes-s
www.github.com/rcrtss

Objective

I intend to consolidate my knowledge and identify future opportunities at the intersection of Artificial Intelligence and Robotics, specializing in Edge AI and Physical AI. In the long-term I see myself leading teams of engineers in AI applications, in relevant private or public organizations and hopefully my own company, while building an academic career.

Academic Background

Universidad Anáhuac Norte, Mexico

Bachelor of engineering, Mechatronics Engineering

Aug. 2015 to May 2020

GPA 9.13/10.00 (Equivalent to 7.53 in Spain)
Ranked among the top 5 students in my cohort

L'École Nationale d'Ingénieurs De Tarbes, France

European Project Semester, Mechanical Engineering (30 ECTS)

Feb. 2019 to Jun. 2019

Development of a software solution for an autonomous mobile robot to follow a person while avoiding obstacles, using embedded sensors and computer vision.

16.74/20 - outstanding performance | 24 ECTS
Ranked highest among all projects in that semester

Extra-academic Courses and Certificates

MIT Profesional Education *Nov. 2024*

Applied Data Science Program: AI for Effective Decision Making

- Intensive 12-week program on applied data science, ML and AI
- Capstone Project: Hybrid Music Recommendation System [F1@k: 0.51]
- 16 Continuing Education Units (CEUs)

Other

- *EILTS Academic English Certificate* - ETS (C1)
- *Machine Learning with Python* | Coursera (IBM)
- *Deep Learning & Neural Networks with Keras* | Coursera (IBM)
- *Programming with Google Go Specialization* | Coursera
- *Intro. to FPGA Design for Embedded Systems* | Coursera

Other Activities

Speaker - Mechatronics Conference Days *Nov. 2024*

Presentation on a scalable architecture for smart energy distribution systems using edge computing and microservices in embedded platforms.

CV Assistant App *Nov. 2023 to Sep. 2024*

Development of a desktop application that uses LLMs to populate a DOCX template from a provided PDF CV, simplifying the process for headhunters. Technologies used: Python, LangChain, PySide.

Inderect Calorimetry Cage *Aug. 2018 to May 2020*

Research project focused on an indirect calorimetry cage prototype designed to measure heat production in laboratory rats. Received third place in Anahuac's research poster contest (10th edition) for the undergraduate category.

Eigenvalue Problem for Vibration Analysis *Sep. 2018*

Presentation on an application of the eigenvalue problem for vibration analysis (co-author). URL:
https://www.smm.org.mx/resumen_semblanza.php?t=res&id=1694

Professional Experience

Software Engineer

Circontrol (BCN) | Jun. 2023 to Present

- Developed software for smart electrical power distribution systems.
- Designed and implemented an Energy Management System for smart buildings.
- Built and deployed microservices using Golang, Docker CLI and Docker Compose.
- Developed a system for device interoperability for MQTT, Modbus, REST, and gRPC.
- Applied Clean Architecture, TDD, DDD and SOLID principles.
- Researched new technologies and architectures for IoT and Edge Computing.

R&D Embedded Software Engineer

BSV. Electronic (BCN)| Jul. 2022 to Jun. 2023

- Designed software and hardware for pool automation systems.
- Developed MCU firmware in C and C++ for STM32 (Cortex M4) and ESP32.
- Integrated cost-efficient embedded solutions to enhance performance.
- Optimized system architecture, improving efficiency in real-time systems.

Software Development Engineer C++

Altair Engineering (CDMX) | Nov. 2020 to Feb. 2022

- Developed core features for HyperWorks using C++.
- Improved software stability by identifying and fixing critical bugs.
- Managed software development cycle and version control.

Junior Network and Transportation Engineer

Traxión Logistics (CDMX)| Apr. 2020 to Nov. 2020

- Optimized transportation routes through data analysis, reducing costs.
- Developed dashboards to identify and capitalize on operational opportunities.
- Implemented data pipelines for real-time metric tracking.
- Collaborated with clients to offer customized logistic solutions to fit their needs.

Tools and Technologies

- Programming Languages: C/C++, Python, Go, Java, R, Shell
- Data Libriaries: Keras, Numpy, Pandas
- AI Libraries: LangChain, OpenAI, OpenCV, CUDA (HW acceleration)
- IoT Frameworks: EdgeX Foundry
- Embedded: Jetson Nano, RaspberryPI, ESP32, STM32, PIC16, atmega328
- Version Control: Git, GitHub, GitLab, Perforce
- Architectures: Microservices (Docker), Ports and Adapters
- Communication Protocols: MQTT, Modbus, REST, CAN, gRPC
- IDEs: Visual Studio, VS Code, Codeblocks, vim
- Scientific Programing: Labview, MatLab & Simulink, Mathematica
- Project Management: Redmine, Jira, Confluence
- Operating Systems: Linux (Ubuntu), Windows

Hard Skills

- Embedded Systems
- IoT and Edge Computing
- Data Structures and Algorithms
- Robotics and Control Theory
- Statistics and Machine Learning
- Engineering design
- High and Low Level Design

Soft Skills

- Assertive Communication
- Problem Solving
- Critical Thinking
- Presentation Skills
- Teamwork
- Leadership
- Adaptability

Languages

- Spanish: Native
- English: C1
- German: A2
- French: A2

Other Interests

- Drums/Percussions and Electric Guitar
- Music Technology and Audio
- Philosophy
- Scuba Diving