

# Marcos Moura

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## Personal Profile

I'm currently doing a master degree in Sensor Systems and Innovation and working as a principal engineer at USN. Passionate about physics and robotics, I possess practical knowledge of tools in the fields of robotics, automation, machine learning, and web development. In addition to experience with programming languages such as Python, C++, and Typescript, I am familiar with libraries and frameworks including ROS, ROS2, ReactJS, and NodeJS. I am also passionate about photonics and modeling optical/photonic devices. During my graduation, I spent several years on research projects, using CAE software (COMSOL / HFSS-Ansys) to model and perform FEM simulations on various devices, such as waveguides, circulators, etc. Furthermore, I have experience with Agile Framework, machine learning, and research projects, contributing to initiatives for the Norwegian Research Council (Autonowweather) and the European Research Council (ArchitectECA).

## Education

### University of South-Eastern Norway

Master in Sensor Systems and Innovation

- Sensor Technology focus

Horten - Norway

Aug 2025 - current

### Puc Minas

Lato Senu Postgraduate Degree - Specialization in Full Stack Development

- Specialization in software development
- AGILE focused

Online

Aug 2024 - Aug 2025

### Federal Center for Technological Education of Rio de Janeiro

BSc in Electronic Engineering

- Leader of extension projects
- Student researcher in Photonics and Robotics
- 2 articles published

Rio de Janeiro, Brazil

Feb 2016 - Mar 2022

### National Service for Industrial Training (SENAI)

Technician in Industrial Automation

- Graduated with Distinction

Duque de Caxias, Brazil

Feb 2014 - Dec 2016

## Work Experience

### Universitetet i Sørøst-Norge

Principal Engineer

- Maintain and fix electronic equipment at the robotics laboratory.
- Write and maintain code to implement algorithms, perform simulations, and interface with robotic hardware platforms
- Contribute with EU Horizon NFR projects where the department of microsystems of USN is involved
- **Technical Skills:** C++, Python, Drones, ROS/ROS2, Computer Vision.
- **Soft Skills:** Agile, Presentation skills, scientific writing.

Tønsberg, Norway

Jul 2025 - Current

### Scientific Assistant in Robotics and Machine Learning

- Support the development of softwares in projects that involves drones and machine learning.
- Support the maintenance of hardware (drones, rovers, etc.) in the robotic lab.
- Support on the writing of technical reports, articles and applications.
- **Technical Skills:** C++, Python, Drones, ROS/ROS2, Computer Vision.
- **Soft Skills:** Agile, Presentation skills, scientific writing.

Tønsberg, Norway

Jul 2023 - Jul 2025

### Volvo Cars

AD&ADAS System Design Engineer

- Write and review camera system requirements according to ISO26262.
- Verify the algorithms delivered by suppliers.
- Document the phases of software development.
- **Technical Skills:** C, Python, Camera Hardware, System Design, CI/CD.
- **Soft Skills:** Agile, Project Management, Communication.

Gothenburg, Sweden

Jan 2023 - Jul 2023

## TracSense AS

### Embedded Systems Developer

- Design and choose components (microcontrollers, sensors) of embedded systems as well as their programming in C++.
- Integrate functionalities with ROS/ROS2 in embedded Linux.
- Collect and process data to be used in Machine learning algorithms.
- Manage the work packages in projects from European Research Council and Norwegian Research Council.
- **Technical Skills:** Python, Linux, C++, ROS.
- **Soft Skills:** Teamwork, Communication, Presentation skills, Agile.

Oslo, Norway

Nov 2021 - Dec 2022

### Junior Web & Sensor Developer

- Programming microcontrollers from ATmega and STM families in C++.
- Assist in the development of RESTfull APIs in NodeJS.
- Assist in the development of the Front-End of the web page in ReactJS.
- **Technical Skills:** NodeJS, ReactJS, Typescript, C++, C, Python.
- **Soft Skills:** Teamwork, Communication, Logical Thinking.

Rio de Janeiro, Brazil

Sep 2020 - Nov 2021

## Danke Delivery

### Full Stack Developer - Part Time

- Develop two web management platforms using ReactJs.
- Set up and host websites on Firebase.
- **Technical Skills:** ReactJS, Sass, Husky, Firebase.
- **Soft Skills:** Project Life cycle, Agile, Communication.

Rio de Janeiro, Brasil

Jul 2021 - Dec 2021

## ECOIA - PUC/Rio

### System Development Intern

- Use technological concepts to develop MVPs of products that solutions to current problems at Petrobras.
- Present the solutions and MVPs in the form of an elevator pitch.
- **Technical Skills:** HTML, Python Web Frameworks.
- **Soft Skills:** Project Life cycle, Agile, Communication, Presentation skills.

Rio de Janeiro, Brasil

Feb 2020 - Oct 2020

## Code4All

### Freelance Robotic Teacher

- Teach mechanical, electronic and robotics concepts to children, teenagers and adults.
- Assemble robots for school events.
- Create handouts and develop materials for classes.
- **Technical Skills:** Python, C++, Arduino.
- **Soft Skills:** Teaching, Communication, Presentation skills.

Rio de Janeiro, Brasil

Apr 2019 - May 2021

## Skills

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**Programming** Python, C/C++, C#, MATLAB, HTML/CSS, Javascript/Typescript, ReactJS/NodeJS.

**Miscellaneous** Linux, CAE Softwares (COMSOL HFSS/Ansys), Shell (Bash/Zsh), LaTeX (Overleaf/R Markdown), ROS/ROS2, Microsoft Office, Firebase, Git.

**Soft Skills** Agile Framework, Teamwork, Problem-solving, Documentation, Engaging Presentation.

## Languages

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**Portuguese** Native proficiency

**English** Full Professional Proficiency

**Norwegian** Elementary proficiency

## Publications

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- 2025 **Article**, Road Weather Forecasts in Norway with the METRo Model
- 2025 **PrePrint**, Direct Step Edge Follower: a novel edge follower algorithm applied to solar panels inspections with unmanned Aerial Vehicles
- 2025 **PrePrint**, Unreal Engine 5 Simulations of Solar Plant Inspections by Unmanned Aerial Systems with Robot Operating System 2
- 2024 **Congress**, Future SAR Operations: Advancing YOLOv9 Computer Vision for Drones in Marine Rescues via Synthetic to Real Data Transfer
- 2024 **Congress**, Caldas da Rainha and Torres Vedras Coastal Erosion Monitoring System using Unmanned Aerial Vehicles and Aerial Photogrammetry
- 2023 **Congress**, Empowering Search and Rescue Operations with Big Data Technology: A Comprehensive Study of YOLOv8 Transfer Learning for Transportation Safety
- 2022 **Article**, Tesla coil circuit Project with FIR audio filter
- 2021 **Article**, Development of a solar panel control strategy for tracking maximum energy production
- 2020 **Congress**, Reflectance and transmittance spectra of a photonic crystal slab with doped graphene disks for operation at the THz band
- 2020 **Congress**, Design of a surface plasmon resonance based S-R latch circuit
- 2019 **Congress**, [Abstract] Analysis of waveguiding in the THz spectrum with graphene-doped photonic crystals
- 2019 **E-book**, Physics Lyric: Science from the perspective of poetry

## References

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### Anthony Hovenburg, PhD

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### Milena F. Pinto, PhD

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### Joel Salmenius

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