

# Germán Rodríguez

MECHATRONICS ENGINEER

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## Summary

Soon-to-graduate M.Sc. Mechatronics Engineer from Politecnico di Milano with completed bachelors' in both Mechanical and Electronics Engineering. Interested in robotics, programming and mechanical design. Currently searching for a graduate job in which I can be of impact while earning valuable experience as part of the industry.

## Work Experience

### ABB

ROBOTICS INTERN

Ladenburg, Germany

2020-2021

- Developed an integrated platform for automatic programming of ABB robots using Computer Vision and Task-level programming principles.
- In charge of all aspects of the project from concept to Minimum Viable Product.
- Technologies used include JavaScript, C#, OpenCV, RAPID, ABB Robot Web Services.

### Cree Uninorte

TUTOR

Barranquilla, Colombia

2014-2018

- Worked for Universidad del Norte's CREE tutoring program in which students with academic excellence teach topics to others from newer semesters.
- The topics taught were Control, Dynamics, Materials Resistance, Calculus and Algebra.

## Studies

### Master of Science in Mechanical Engineering

POLITECNICO DI MILANO - 27.24/30

Milan, Italy

2018 - Present

- Mechatronics and Robotics track. Studied topics include robotics design, advanced control techniques, optimization algorithms, haptic sensors.

### Bachelor of Science in Mechanical Engineering

UNIVERSIDAD DEL NORTE - 4.53/5

Barranquilla, Colombia

2013 - 2018

- Studied the main characteristics of mechanical systems from the viewpoint of automation and control, kinematics and kinetics, material resistance, stress analysis and thermodynamic systems.

### Bachelor of Science in Electronics Engineering

UNIVERSIDAD DEL NORTE - 4.53/5

Barranquilla, Colombia

2013 - 2018

- Studied the various fields of electronics engineering, such as programming languages, artificial intelligence, image recognition, wired and wireless communication protocols, electronic control, signal processing, circuit design.

## Projects

### Robotic Automation of Laboratory for Faster Covid-19 Testing

ROBOTICS VOLUNTEER

Covmatic

2020

- Design of an open-source, high throughput system for COVID-19 testing.
- The project, developed entirely by volunteers, increased testing capabilities up to thousands of tests in parallel.
- In charge of the communicating and interfacing with the Openrons robots. As well as developing a backend Flask server to enable internet connectivity with the hospital's servers.

### Design of a Mobile Pick-And-Place Robot with Obstacle Avoidance capabilities

UNIVERSITY THESIS

Universidad del Norte

2018

- Development of a mobile robot equipped with an arm for Pick-And-Place applications.
- The robot had the capability of calculating the shortest path to its destination, as well as detecting and avoiding obstacles by finding new routes.
- In charge of the robot design, routing algorithm, obstacle detection scheme, wireless communication, programming.

### Design of a website for cargo vehicle tracking using GPS

UNIVERSITY PROJECT

Universidad del Norte

2017

- Design of a website able to display in real time the position of several cargo vehicles equipped with GPS trackers.
- The website was developed using the AWS platform and PHP.
- In charge of the backend communication between the GPS trackers and the main servers, as well as database setup, organization and AWS support.

- Design of a website in which users were able to create an account and vote for their favorite artist in a voting-based contest.
- The project was supported by AWS and developed on Django.
- Responsible for the whole project.

## Honors & Awards

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2013-2018 **Board of Honor**, Universidad del Norte

Colombia

2012 **Finalist**, International Mathematical Olympiads - National Individual Selection

Colombia

2011 **Finalist**, International Mathematical Olympiads - National Group Selection

Colombia

## Technical Skills

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- Python JavaScript C# C++ ROS MATLAB Simulink Assembly Language (for PIC controllers)  
RAPID (ABB Robots) MySQL PHP

## Languages

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- **English** Fluent
- **Spanish** Native
- **Italian** Fluent
- **German** Basic

## Personal Strengths

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- Having studied two bachelors' at the same time and obtained high averages in both, I am able to organize my time between multiple tasks and do my best in all of them.
- I have great abilities for abstract thinking, problem solving, critical reasoning and understanding programming paradigms.
- I consider myself a very organized person capable of accomplishing complex tasks while staying within schedule.
- Thanks to several group projects throughout the university I have acquired good communication skills and I'm comfortable taking leadership roles.
- I am able to work under pressure and motivated to do my best in everything I put my time on.

## Other information

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- **Hobbies:** Dancing, reading, informing myself on current world events, photography.
- **References:** Fred Parietti - fred@multiplylabs.com. Fan Dai - fan.dai@de.abb.com