

# Carolina Arauz Villegas

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*Bilingual Electrical Engineer*

## Personal Information

Birth December 16th, 1991. Costa Rica  
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Address Santo Domingo, Heredia. Costa Rica

## Areas of Interest

Cognitive robotics, humanoid robots, industrial robots, manipulation techniques, digital control and autonomous robots

## Education

2013–Present **Licenciature of Electrical Engineer**, *Universidad de Costa Rica*, San José, C.R, GPA – 9.5/10.

Currently working in my thesis, a 2 degrees of freedom humanoid robot head, capable of following markers in the 3D space

2009–2013 **Bachelor of Electrical Engineer**, *Universidad de Costa Rica*, San José, C.R, GPA – 9.02/10.

Graduated with Honors

## Bachelor Thesis

Title *Implementation of a mobile base with obstacle evasion using Navigation node in ROS*

Supervisor Phd. Federico Ruiz Ugalde

Description This project included the construction of a mobile base capable of mapping, localization and obstacle detection in order to move autonomously from one point to another using Navigation node in ROS

## Experience

Apr 2015–Present **Applications Engineer**, NATIONAL INSTRUMENTS, Heredia, C.R.  
Specialized support for engineers and scientists that work with National Instruments products, helping them be successful with their applications.  
Helping in social activities that focus in keeping young people studying, as well as getting young women more involved with engineering and technology.

- 2012–Present **Research Assistant**, ARCOS-LAB, San José, C.R.  
 Construction of a semi-autonomous mobile base and a teleoperated omnidirectional robot.  
 Research in developing a low cost laser range scanner.  
 Construction of a full-size Humanoid robot.  
 Development of a pan-tilt system to be use as the head of the humanoid robot.
- Jul 2014 – **Supervisor of Data Quality**, MINAE, San José, C.R.  
 Nov 2014 Guidance, advice and training of staff in all matters related to the electrical part of the study of Energy Consumption in the Commercial and Service Sectors.
- 2012–2014 **Teaching Assistant**, UNIVERSIDAD DE COSTA RICA, San José, C.R.  
 Course: Electronics  
 Develop test problems, graded projects and assisted students with their assignments.
- Apr 2013–Jun 2013 **Internship**, SMITHSONIAN TROPICAL RESEARCH INSTITUTE, San José, C.R.  
 Research in the development of a low-cost 2D imaging sensor for underwater scientific studies , to be use as a quantification method of manatees in Panamá
- Jan 2013–May 2013 **Internship**, GNE CORP, SA, San José, C.R.  
 Development of video tutorials of the ArchestrA SCADA Software and Wonderware InTouch.  
 Research of wireless system, using Digi® Hardware and Modbus protocol.

## Technical skills

- Operating Systems GNU/Linux, Windows®
- Computer Languages PYTHON, C ,  $\text{\LaTeX}$ , LabVIEW (Certified LabVIEW Associate Developer), Matlab
- Automation Programs ArchestrA SCADA Software, Wonderware InTouch, PLC ladder and HMI (Siemens)
- Robotics Software: ROS, YARP. Hardware: teleoperated and semi-autonomous mobile robot
- CAD KiCAD, FreeCAD, AutoCAD®, OrCAD®
- Embedded systems STM32, RaspberryPi, Arduino

## Languages

- Spanish **Mothertongue**
- English **Fluency in oral and written.**

## References

- Prof. Jose David Rojas, PhD. jdrojas@eie.ucr.ac.cr
- Prof. Federico Ruiz Ugalde, PhD. (candidate) fruiz@eie.ucr.ac.cr
- Jorge Sánchez Monge, Ing. jsanchez@racsa.co.cr