

# Carlos Andrés Álvarez

Data Scientist & Electronics Engineer

## Contact Info

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## Summary

Trilingual Data Scientist and Electronics Engineer with emphasis on Telecommunications and Process automation. Very interested in development of new technologies, hardware, internet of things, image processing and artificial intelligence. Passionate for technology, science, and acquiring constantly new knowledge. Good at mathematics and physics, good programmer, disciplined, with skills to work under pressure and within a team.

## Education

- Pontificia Universidad Javeriana Cali - Electronics Engineer diploma (2010-2016): Honorable mention with Thesis *On Orthogonal Functions for the Detection and Characterization of Defects in Infrared Nondestructive Testing of Composite Materials*
- Karlsruhe Institute of Technology (2015): Exchange semester in KIT Germany
- Deutsche Schule Cali Colombia (1997-2010) - Colombian and international baccalaureate (IBO): State exam (ICFES) 6/1000 (1 is the best)

## Experience

- Kiwi Campus - Self Driving Vehicles Data Scientist (current): Data Scientist and Deep Learning researcher for autonomous driving vehicles.
- BD Guidance - IoT Development Engineer (2017): Investigated technologies such as TensorFlow and OpenCV to run ML algorithms in embedded devices. Programmed devices like Raspberry Pi and NodeMCU for closed environments and rooms applications. Designed the curriculum of various IoT courses and recorded one course. Evaluated various IoT/Cloud platforms. Evaluated IoT and Machine Learning services of various Cloud platforms. Presented webinars and talks about IoT and ML several times. Designed the curriculum of various IoT courses and recorded one course.

- Tesat Spacecom - Research intern (2015): Participated in a development project which was the design of Ka band (20GHz) filters that were adjustable in their center frequency on the satellite in-orbit.

## Research

- [Characterization of defects of pulsed thermography inspections by orthogonal polynomial decomposition](#) in [Elsevier NDT & E International](#)

## Open Source

- [node-red-contrib-sensor-ds18b20](#): Node-RED contrib node to get temperature in centigrades from DS18B20 sensors.
- Contributor to [dataget](#): download, extract and process popular machine learning datasets with a single line of bash or python.

## Areas of Interest

### Electronics Engineering

Embedded Systems, Internet of Things, Signal Processing, Hardware Development ##### Data Science Deep Learning/Neural Networks, Artificial Intelligence, Machine Learning

### Languages

- Spanish: native
- English: C1
- German: C1

### Programming Languages

Python: 5+ years, Matlab+Simulink: 5+ years, C: 2+ years, C++: 2+ years, Mathematica: 1+ years, JavaScript: 1+ years, Java: 1+ years

**Hardware and Systems:** VHDL, SDL MSC, UML

**Mini-projects:** C, Java, Coq

### Tools/Frameworks

### Simulation

- Circuits: [Multisim](#), [PSpice](#).
- Electromagnetics: [ADS](#), [HFSS](#), [CST](#), [MMana-Gal](#), [QuickField](#).
- Hardware: [Quartus suite](#), [Xilinx suite](#)

**Hardware:** Xilinx and Altera FPGAs, [Arduino](#) (Mini, Nano, Uno), [Raspberry Pi](#) (2,3), [ESP8266](#) (NodeMCU, Wemos), RF Modules (nRF24L01)

**Data Science:** [Tensorflow](#) (python), [Scikit Learn](#) (python), [Pandas](#), [Numpy](#)

**Development:** [Flask](#) (python), [Git](#)

**DevOps:** [Docker](#), [Ngrok](#)

## Community

### Organizations/Groups

- Co-founder of [SmartCities & IoT Meetup Medellin](#)
- Co-founder of [Machine Learning Meetup Medellin](#)
- Administrator in [Machine Learning Colombia](#)
- Contributor to [colomb-ia](#)

### Talks/Conferences and Webinars

- [IoT con NodeRed & Watson](#) at SmartCities & IoT Meetup Medellin
- [Introduction to Machine Learning](#) at BDG Institute Colombia Tour
- [Introducción al Internet de las cosas \(IoT\) con Raspberry Pi, Node-Red y Watson](#) with BD Guidance on Youtube.

### Projects

- [Running Convnets on RaspberryPi](#)
- [IoT Demo with Raspberry, Node-Red and Watson](#)
- [Sentiment Analysis using Images with Google](#)
- [Snapchat filters in Python with OpenCv and Dlib](#)
- [Docker image for python openCV with contrib modules](#)

### e-Learning

- [Object Oriented Programming in Java](#) by University of California on Coursera
- [Quantum Mechanics for Scientists and Engineers](#) by David Miller on Stanford Online
- [Machine Learning](#) by Andrew Ng on Coursera
- [Audio Signal Processing for Music Applications](#) by Xavier Serra (Universitat Pompeu Fabra of Barcelona) on Coursera

## **Other Information**

### **Scholarships**

- “Beca Saber Pro” (2016), 2.500.000 pesos for postgraduate studies in PUJ Cali. Second best result of state exams in the university’s engineering faculty.
- “DAAD Jóvenes Ingenieros Colombia” (2014/15) All inclusive exchange program in Germany.
- “Beca Magis” (2010/16) 75% tuition fees all semesters for graduate studies.
- PAD all inclusive scholarship (2009) student exchange in Germany for one month.

### **Awards**

- Highest GPA of electrical department. Winter semester 2013
- Three times highest GPA. Winter semester 2010, summer and winter semester 2011.

### **Hobbies**

- Music: trombone and drums
- Traveling

### **Personal references**

- Cristian García - Lead Data Scientist at Kiwi Campus. Cel: 314 862 7978, email: cgarcia.e88@gmail.com
- Orlando Briceno - CEO at BD Guidance. Cel: 321 477 2967, email: orlando.briceno@bdguidance.com
- Dr. Luis Eduardo Tobón - Director of Postgraduates programs at Javeriana University. Cel: 311 335 7844, email: letobon@javerianacali.edu.co
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