

# Sebastian Cepeda

MSc electrical engineering with more than 4 years of full-time experience in Software development, Machine learning and Computer Vision.

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## EXPERIENCE

### Cencosud, Chile: *Data scientist*

Dec 2018-PRESENT

Cencosud is a multinational retail company in Latin America.

- Sales forecast for retail logistics, using machine learning models in Python(NN, GBM, linear regression, lasso, clustering) with Pandas, Matplotlib, Numpy, scikit-learn, scaling to big data with Dask, azure databricks.
- Detection of pedestrian and tracking, measuring the flow of people in physical shops in python using CNN in TensorFlow (YOLO), Kalman filter, OpenCV.
- Setting up Azure devops git code repository, including testing/continuous integration, code coverage, documentation.

### WoodtechMS, Chile: *Software development engineer*

Apr 2015 – Dec 2018

Woodtech brings solutions of measurement in industrial applications, like measuring raw material intake (f.e. wood, mineral rocks) in Europe and America.

- Development of hardware simulations and drivers in Java.
- Use of LIDAR to measure wood and minerals, using multithreaded C++ programs, linear algebra/geometry and statistical modelling.
- Use of Kalman filter to smooth GPS readings.
- Research of stereo vision and 3D reconstruction from images (SfM, MVG), and development of implementation using C++, OpenCV and PCL, and camera parameters calibration.
- Modelling of electromagnetic absorption, using Octave.
- Guidance in development of mathematical models (Kalman filter, linear regression).
- Use of Jenkins for testing, git/svn for code repository. Development for linux and Windows.
- Management of interns during their projects.
- Ownership of the complete software for a product, from development to production (access control in industrial settings):
  - Design and development of algorithms in C++ for data processing.
  - GUI development in Java.
  - Configuration of the system using MySQL.
  - Configuration of sensors (cameras, LIDAR, network).

## APTITUDES

● Computer vision  
{CNN, SfM, Stereo Vision, OpenCV, PointCloudLibrary, LIDAR, 3D point cloud processing/segmentation}

● Machine learning  
{TensorFlow, Keras, Pandas, scikit-learn, dask, azure databricks, DNN, LSTM, time series forecasting}

● Software development {Java, C/C++, Python, MySQL, docker, cmake}

## LANGUAGES

● Spanish: Native language.

● English: Fluent (reading, writing, speaking)

- Deployment in production (developing installers).

### **WoodtechMS, Chile: *Internship/Freelancer***

Apr 2013-Feb 2014

Development of algorithms in C++ for wood measurement, using segmentation of 3D point clouds.

### **Sixbell, Chile: *Internship***

Jan 2013 – Feb 2013

Development of an Interactive Voice Response app in Java for Android.

## **EDUCATION**

### **University of Chile, Chile: *MSc electrical engineering (GPA 3.7/4.0)***

2014-2016

Master's thesis focused on solving the segmentation of blood vessels in images of the eye's fundus for detection of diabetic retinopathy, using computer vision.

### **University of Chile, Chile: *Minor in computer science (GPA 3.3/4.0)***

2011-2013

### **University of Chile, Chile: *BSc electrical engineering (GPA 3.3/4.0)***

2008-2016

## **PROJECTS**

### **Biomedical engineering lab: ([ingenieria.uchile.cl](http://ingenieria.uchile.cl)), University of Chile (Mar 2014–Dec 2015)**

MSc Thesis: Blood vessels segmentation in retinal images  
(<http://repositorio.uchile.cl/handle/2250/138129>).

### **AMTC Robotics lab: ([www.amtc.cl](http://www.amtc.cl)), University of Chile (May 2011–Oct 2011)**

Testing the C++ software of the [autonomous car project](#) of the group.