



# Roberto Valle Fernández

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## Curriculum Vitae

### Education

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<b>Technical University of Madrid</b> <i>PhD Programme in Artificial Intelligence</i> Thesis: Multi-task shape preserving face alignment.	<b>Madrid, Spain</b> 2015 - 2020
<b>Rey Juan Carlos University</b> <i>MSc in Computer Vision, 8.83/10</i> Thesis: Text detection and recognition in the wild.	<b>Madrid, Spain</b> 2011 - 2013
<b>Rey Juan Carlos University</b> <i>MSc in Computer Science and Engineering, 7.91/10</i> Thesis: Vehicle localization, license plate recognition and model identification.	<b>Madrid, Spain</b> 2009 - 2011
<b>Rey Juan Carlos University</b> <i>BSc in Computer Science, 7.19/10</i> Thesis: Vehicle model recognition.	<b>Madrid, Spain</b> 2006 - 2009

### Internship

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<b>University of Nottingham</b> <i>Under the supervision of Prof. Georgios Tzimiropoulos</i> Computer Vision Laboratory.	<b>Nottingham, England</b> 2019
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### Scientific Publications

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<b>Multi-task Head Pose Estimation In-the-Wild</b> <i>Roberto Valle, José M. Buenaposada, Luis Baumela</i> IEEE Transactions on Pattern Analysis and Machine Intelligence, PAMI 2021.	2020
<b>Cascade of Encoder-Decoder CNNs with Learned Coordinates Regressor for Robust Facial</b> <i>Roberto Valle, José M. Buenaposada, Luis Baumela</i> Pattern Recognition Letters, PRL 2020, 136, pp. 326-332.	2019

### **Face Alignment using a 3D Deeply-initialized Ensemble of Regression Trees**

*Roberto Valle, José M. Buenaposada, Antonio Valdés, Luis Baumela*

2019

Computer Vision and Image Understanding, CVIU 2019, 189.

### **Facial Landmarks Detection Using a Cascade of Recombinator Networks**

*Pedro D. López, Roberto Valle, Luis Baumela*

2018

23rd Iberoamerican Congress on Pattern Recognition, CIARP 2018, pp. 575-583, Madrid, Spain, November 19-22.

IAPR Best Student Paper Award.

### **A Deeply-initialized Coarse-to-fine Ensemble of Regression Trees for Face Alignment**

*Roberto Valle, José M. Buenaposada, Antonio Valdés, Luis Baumela*

2018

European Conference on Computer Vision, ECCV 2018, pp. 609-624, Munich, Germany, September 8-14.

### **Benchmarking Head Pose Estimation in-the-Wild**

*Elvira Amador, Roberto Valle, José M. Buenaposada, Luis Baumela*

2017

22nd Iberoamerican Congress on Pattern Recognition, CIARP 2017, pp. 45-52, Valparaíso, Chile, November 7-10.

### **Head Pose Estimation In-the-Wild Using a Random Forest**

*Roberto Valle, José M. Buenaposada, Antonio Valdés, Luis Baumela*

2016

9th Conference on Articulated Motion and Deformable Objects, AMDO 2016, pp. 24-33, Palma de Mallorca, Spain, July 13-15.

## **Patents**

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### **Localization of Planar Objects in Images Bearing Repetitive Patterns**

*Luis Baumela, José M. Buenaposada, Roberto Valle, Miguel A. Orellana, Jorge Ramirez*

2020

U.S. Patent 10922582, February 16, 2021.

## **Teaching Assistant**

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### **Reconocimiento de Formas**

*Prof. Luis Baumela*

2017 - 2019

Spanish.

### **Deep Learning**

*Prof. Luis Baumela*

2017 - 2019

English.

## **Languages**

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### **Spanish**

*Native proficiency*

### **English**

*First Certificate in English (FCE), Cambridge ESOL*

## **Scholarships Received**

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### **Menéndez Pelayo International University**

**Madrid, Spain**

*Intensive English language classes, Intermediate Level 2*

2012 - 2014

Level B2 related to Common European Framework of Reference for learning languages.

### **Spanish Ministry of Education Scholarship**

**Manchester, England**

*Language course abroad for a minimum period of 3 weeks*

2011

## Research Areas

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### Technical University of Madrid

*Perception for computers and robots group*

2013 - 2020

Collaborator for the PCR group interested in the following areas:

- Computer Vision
- Machine Learning
- Artificial Intelligence
- Deep Learning

## Computer Skills

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### Operating Systems

*Linux, Mac OS X, Windows, iOS, Android*

### Programming Languages

*C++, Python, Octave/Matlab*

### Computer Vision Libraries

*OpenCV, Tensorflow, Keras, Caffe, Boost, Scikit-Learn*

### Database Management

*PostgreSQL, PostGIS*

### Data Visualization and Analytics

*TIBCO Spotfire*

## Research Projects

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### Research HEIMDAL-UPM project

*Detecting semantic data using multiple sensors in-the-wild*

2017 - 2019

Spanish Ministry of Education and Competitiveness.

### Research SPACES-UPM project

*Human behaviour supervision using multiple sensors*

2014 - 2016

Spanish Ministry of Education and Competitiveness.

## Work Experience

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### Telefónica S.A.

Madrid, Spain

*Deep learning and satellite images to estimate the impact of COVID-19*

2020 - 2021

Motivated by the fact that the Coronavirus Disease (COVID-19) pandemic has caused worldwide turmoil in a short period of time since December 2019, we estimate the negative impact of COVID-19 lockdown in the capital of Spain, Madrid, using commercial satellite imagery courtesy of Maxar Technologies<sup>®</sup>. The authorities in Spain are adopting all necessary measures, including urban mobility restrictions, to contain the spread of the virus and mitigate its impact on the national economy. These restrictions leave signatures in satellite images that can be automatically detected and classified. Demo: <https://www.youtube.com/watch?v=iJq0BnK9upQ>.

### The Grafter S.L.

Madrid, Spain

*Facade building localisation for an augmented reality Android and iOS app*

2013 - 2015

Research and develop on algorithms for localisation of buildings (with repetitive structures) on video streams. The application renders the live camera preview frame on the display to represent a superimposed image over the building. Demo: <https://www.youtube.com/watch?v=hIj3VY6du0k>.

**CAB Magazine Online S.L.**

**Madrid, Spain**

*OCR for Spanish ID documents on video*

*2012*

The goal of the project was to read, in short video streams, the three OCR lines of the Spanish ID documents. OCR lines appears also on other countries passports (our software is valid for this other documents also with minimal customization). In this project we developed a full prototype using C++ and OpenCV on GNU/Linux. Unfortunately the company gave up on the project before the full validation of the prototype so we have the software and the project available to any interested company. Demo: <https://www.youtube.com/watch?v=3CaBmIKT06Y>.