

## Personal information

Surname(s) / Name(s)

Address

Postal code

Phone number(s)

E-mail

LinkedIn

Nationality

Date of Birth

Gender

# Curriculum Vitae Europass



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Spanish

19/12/1995

Male



Desired job

**Engineer in Intelligent Transportation Systems** in the field of **Computer Vision, Robotics, Intelligent Systems, Artificial Intelligence, Advanced Driver Assistance Systems (ADAS), Sensor Fusion** and related fields.

## Education

Period

**2019/- (Currently doing)**

**PhD in Electronics: Advanced Electronic Systems. Intelligent Systems (D441)**

(Escuela Politécnica Superior – University of Alcalá)

Period

**2017/2019**

MSc in **Industrial Engineering** – MUII (M141)

Focused of **Robotics** and **Perception**

(Escuela Politécnica Superior - University of Alcalá, UAH)

Grade

**Master's degree grade = 8.50 / 10 (Top 2 students)**

**6 subjects with honours** (1. Chemical Industry, 2. Basic Operations and Chemical Reaction Engineering, Industrial Communication Systems (Erasmus +), 4. Fundamentals of Robot Vision (Erasmus +), 5. Machine Learning Methods, 6. MSc final project)

Period

**2013 / 2017**

BSc in **Industrial Electronic and Automatic Engineering** - GIEAI (G60)

(Escuela Politécnica Superior – University of Alcalá, UAH)

Grade

**Bachelor's degree grade = 7.66 / 10 (Top 3 students)**

**4 subjects with honours** (1. Differential calculus, 2. Business economics, 3. Power Electronics, Drives and Energy Conversion (Erasmus +), 4. BSc final project)

Personal Honours and Awards

- **First Prize award** in the “2020 Awards – Campus of International Excellence: Bioenergy & Smart Cities” (Master's thesis category). Funded by UAH and URJC universities
- **Honorable Mention** in the **XVI Edition** of the contest "**Premio a la Innovación Tecnológica 2019**" (**Master's Degree Final Project**) according to the **COIIM** (Official College of Industrial Engineers of Madrid) and **FRBS** (Fundación Rodolfo Benito Samaniego)
- **4 years scholarship** to course the **PhD – 2019/2023** (University of Alcalá)
- **Best Bachelor's degree Final Project** (**GIEAI 2013-2017**) according to the **Escuela Politécnica Superior (UAH)**

## Collective Honours and Awards

- **Best Bachelor's degree Final Project of Guadalajara in 2017** according to the COITIGU (Official College of Industrial Technical Engineers of Guadalajara)
- **Second best project award in the contest "Prize for the Best Degree Final Projects 2017 in the Industrial Branch of the Community of Madrid"** organized by the COITIM (Official College of Industrial Technical Engineers of the Community of Madrid)
- **Research scholarship at the RobeSafe research group – 2017** (Spanish MECD – Ministry of Education, Culture and Sport)

## Internships

- **First Prize award** in the field "Why be an Industrial Engineer?" in 2020 (Escuela Politécnica Superior - University of Alcalá, UAH)
- **Institutional Leadership Award 2019** from the IEEE Intelligent Transport Systems Society
- **Expert Jury Prize** in the Entrepreneurship Contest ("Tu idea en un minuto") in 2016 (Expert Jury Prize)

**Master's degree: Erasmus+ grant** (2º semester, 2º year): **5 months** in the **Tampere University of Technology (Tampere, Finland)** where it was coursed Industrial Communication Systems (**Honours**), Machine Learning Methods (**Honours**), Fundamentals of Robotic Vision (**Honours**) and Virtual Commissioning of Robotic Systems.

**Bachelor's degree: Erasmus+ grant** (1º semester, 4º year): **4 months** in the **University College of Cork (Cork, Ireland)** where it was coursed Power Electronics, Drives and Energy Conversion (**Outstanding with honours**), Photovoltaic Systems, Robotics, Transmission Lines, CAD/CAM/CAE and Project Management.

## Courses

### Completed courses:

**MATLAB** course for Control Engineering - 25 hours (EPS-UAH)

**Autodesk Inventor 2014** course - 40 hours (EPS-UAH)

**ROS** (Robot Operating System) course - 35 hours (University Bar Ilan, Israel)

**International Course on Entrepreneur: Skills and Developing Opportunities** - 150 hours (UAH)

**University-Business Innovation Course MERLIN-UAH** - 22 hours (UAH)

**Linux** course - 23 hours (EPS-UAH)

**C++** course - 45,5 hours (Udemy)

**Python 3** course - 9 hours (Udemy)

**Docker** course - 8,5 hours (Udemy)

**Elements of AI** course - 20 hours (University of Helsinki - Reaktor)

**Sensor Fusion engineer** courser – 150 hours (Udacity)

**AWS Machine Learning Foundations** course - (Udacity)

**Building Deep Learning Applications with Keras 2.0** – 3 hours (LinkedIn Learning)

**Visual Perception for Self Driving cars** course – 60 hours (Coursera) (Grade: **99.6 over 100**)

### Ongoing courses:

**Machine Learning: Data Science in Python** course (Udemy)

**Complete Git Guide:** Understand and master Git and GitHub (Udemy)

## Professional experience

### Position held

**Bachelor's degree internship** (January 2017 – July 2017)

### Main functions

- Prepare **teaching material** about **CCP solar thermal technology** in the **SolarCV Project (Erasmus+ Key Action 2 - KA2)**
- Design of a **Data Acquisition System** for **industrial plants** through instrumentation devices

### Company Sector

**RENOVE TECNOLOGÍAS, S.L.** (FUENLABRADA / MADRID)  
Solar Energy and Industrial Maintenance

<b>Position held</b>	<b>Research staff (PDI) (October 2017 - December 2018)</b>
<b>Main functions</b>	<ul style="list-style-type: none"> <li>• Develop the BSc Degree Final Project titled “Reconstrucción de Mapas con Detección de Cambios a partir de Google Street View” (“<b>Maps Reconstruction with Change Detection</b> by using <b>Google Street View</b>”)</li> <li>• Install the <b>electric batteries</b> in an <b>autonomous electric vehicle</b></li> <li>• Design of a mechanical structure for the <b>integration</b> of the <b>sensors</b> in the <b>real vehicle</b></li> <li>• Design of a <b>semantic segmentation algorithm</b> for <b>scene understanding</b> based on <b>Convolutional Neural Networks</b></li> <li>• Design of a <b>perception algorithm</b> based on the <b>fusion</b> of <b>visual information</b> and <b>LiDAR</b> good enough for the <b>navigation</b> of an <b>autonomous vehicle</b>.</li> </ul>
<b>Company</b>	<b>RobeSafe research group</b> (Escuela Politécnica Superior - UAH)
<b>Sector</b>	Intelligent Transportation Systems. Robotics and Artificial Intelligence
<b>Position held</b>	<b>PhD candidate (FPI grant) (April 2019 – April 2023)</b>
<b>Main functions</b>	<ul style="list-style-type: none"> <li>• Study of Deep Learning based approaches for scene understanding in the context of self-driving cars.</li> <li>• Development of a Deep Learning based model in order to predict and detect the dynamic and static objects of the scene with the least number of active sensors.</li> <li>• Implementation the proposed model in the real world autonomous electric car prototype of the SmartElderlyCar to validate the obtained results in simulation.</li> </ul>
<b>Company</b>	<b>RobeSafe research group</b> (Escuela Politécnica Superior - UAH)
<b>Sector</b>	Intelligent Transportation Systems. Robotics and Artificial Intelligence

## R&D projects

- Title of the project: Techs4AgeCar. Perception and Vehicle to User (V2U) communication robust technologies
  - Funding entity: RTI2018-099263-B-C21
  - Participant entities: UAH
  - Period: 1-01-2019 - 30-06-2022
  - Main researcher(s): Luis Miguel Bergasa Pascual
  - Number of research staff: 6
  - TOTAL AMOUNT OF THE PROJECT: 150.040 € (UAH)
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- Title of the project: Research on Visual Question Answering (VQA) techniques
  - Funding entity: NIELSEN SERVICES SPAIN S.L.
  - Participant entities: UAH, NIELSEN
  - Period: 16-12-2019 - 16-12-2020
  - Main researcher(s): Luis Miguel Bergasa Pascual
  - Number of research staff: 7
  - TOTAL AMOUNT OF THE PROJECT: 38.720 € (UAH)
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- Title of the project: Detección de torres eléctricas en imágenes mediante técnicas de aprendizaje profundo
  - Funding entity: SOTICOL ROBOTICS SYSTEMS S.L.
  - Participant entities: UAH, SOTICOL
  - Period: 13-09-19 – 31-07-2020
  - Main researcher(s): Luis Miguel Bergasa Pascual
  - Number of research staff: 3
  - TOTAL AMOUNT OF THE PROJECT: 13.915 € (UAH)
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- Title of the project: RoboCity2030 – Madrid Robotics Digital Innovation Hub (RoboCity2030-DIH-CM)
  - Funding entity: CM (P2018/NMT- 4331)
  - Participant entities: C3M, CAR-CSIC, UPM, UAH, URJC, UNED
  - Period: 1-01-2019 - 31-12-2022
  - Main researcher(s): Luis Miguel Bergasa Pascual
  - Number of research staff: 6 (UAH)
  - TOTAL AMOUNT OF THE PROJECT: 97.163 € (UAH)

- Title of the project: Intelligent Vehicle for Elderly people (SmartElderlyCar)
- Funding entity: TRA2015-70501-C2-1-R
- Participant entities: UAH, UVIGO
- Period: 01/01/2016 - 30/06/2019
- Main researcher(s): Luis M. Bergasa, Rafael Barea
- Number of research staff: 4 (UAH)
- TOTAL AMOUNT OF THE PROJECT: 127.050 € (UAH)
- Title: Research staff of the University of Alcalá as guarantor of the national thematic network of Automatic (CEA)
- Type of activity: Participation in the request for help and in the dissemination activities of robotics programmed in the CEA network
- Reference: RED2018-102688-T, total amount: 23.100 €, 14 guarantor entities representing 55 universities
- Period: 2019-2020

## Publications

- Authors: Felipe Arango, Luis M. Bergasa, Pedro A. Revenga, Rafael Barea, Elena López-Guillén, **Carlos Gómez-Huélamo**, Javier Araluce and Rodrigo Gutiérrez
- Title: Drive-By-Wire Development Process based on ROS for an Autonomous Electric Vehicle
- Journal: Sensors (**Q1 - 2019 (Impact Factor 2018: 15/64 – 3.275)**)
- Category: Instruments & Instrumentation
- Publication: Accepted
- Date: September 2020
- Authors: Rodrigo Gutiérrez, Elena López-Guillén \*, Luis Miguel Bergasa, Rafael Barea, Óscar Pérez, **Carlos Gómez-Huélamo**, Juan Felipe Arango, Javier del Ego, Joaquín López-Fernández
- Title: A Waypoint Tracking Controller for Autonomous Road Vehicles using ROS Framework
- Journal: Sensors (**Q1 - 2019 (Impact Factor 2018: 15/64 – 3.275)**)
- Category: Instruments & Instrumentation
- Publication: DOI (10.3390/s20144062) (v: 20, pp: 4062-4086)
- Date: July 2020
- Authors: **Carlos Gómez-Huélamo**, Javier del Ego, Luis M. Bergasa, Rafael Barea, Manuel Ocaña, Felipe Arango, Rodrigo Moreno
- Title: “Real-Time Bird’s Eye View Multi-Object Tracking system based on Fast Encoders for Object Detection”
- Type of participation: PRESENTATION AND BOOK CHAPTER WITH ISBN
- Congress: 23rd International IEEE Conference on Intelligent Transportation Systems (ITSC 2020)
- Publication: Pending
- Congress venue: Rhodes, Greece (Online)
- Date: September 2020
- Authors: Álvaro Sáez, Luis M Bergasa, Elena López-Guillén, Eduardo Romera, Miguel Tradacete, **Carlos Gómez-Huélamo**, Javier del Ego
- Title: Real-Time Semantic Segmentation for Fisheye Urban Driving Images based on ERFNet
- Journal: Sensors (**Q1 - 2018 (Impact Factor 2018: 15/61 – 3.031)**)
- Category: Instruments & Instrumentation
- Publication: DOI (10.3390/s19030503) (v: 19, pp: 503-522)
- Date: January 2019
- Authors: **Carlos Gómez-Huélamo**, Luis M. Bergasa, Rafael Barea, Elena López-Guillén, Felipe Arango, Pablo Sánchez
- Title: Simulating use cases for the UAH Autonomous Electric Car
- Type of participation: PRESENTATION AND BOOK CHAPTER WITH ISBN
- Congress: 22nd International IEEE Conference on Intelligent Transportation Systems (ITSC 2019)
- Publication: Proceedings of ITSC2019 (ISBN: 978-1-5386-7023-1/19) (pp: 2305- 2311)
- Congress venue: Auckland, New Zealand
- Date: October 2019

- Authors: **Carlos G. Huélamo**, Pablo F. Alcantarilla, Luis M. Bergasa and Elena López-Guillén
  - Title: Change Detection Tool Based on GSV to Help DNNs Training
  - Type of participation: PRESENTATION AND BOOK CHAPTER WITH ISBN
  - Congress: 19th International Workshop of Physical Agents (WAF 2018). [https://doi.org/10.1007/978-3-319-99885-5\\_9](https://doi.org/10.1007/978-3-319-99885-5_9)
  - Publication: Proceedings of WAF 2018. (ISBN: 978-3-319-99884-8) (pp: 115-131)
  - Date: November 2018
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- Authors: **Carlos G. Huélamo**, Juan F. Arango, Miguel Tradacete, Álvaro Sáez, Esther Murciego, Rafael Barea, P. Revenga, Elena López-Guillén and Luis M. Bergasa
  - Title: Topological road mapping for autonomous driving applications
  - Type of participation: PRESENTATION AND BOOK CHAPTER WITH ISBN
  - Congress: 19th International Workshop of Physical Agents (WAF 2018). [https://doi.org/10.1007/978-3-319-99885-5\\_18](https://doi.org/10.1007/978-3-319-99885-5_18)
  - Publication: Proceedings of WAF 2018. (ISBN: 978-3-319-99884-8) (pp: 257-270)
  - Date: November 2018
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- Authors: Miguel Tradacete, Álvaro Sáez, Juan F. Arango, **Carlos G. Huélamo**, P. Revenga, Elena López-Guillén, Rafael Barea, Luis M. Bergasa
  - Title: Positioning system for an electric autonomous vehicle based on the fusion of Multi-GNSS RTK and Odometry by using an Extended Kalman Filter
  - Type of participation: PRESENTATION AND BOOK CHAPTER WITH ISBN
  - Congress: 19th International Workshop of Physical Agents (WAF 2018). [https://doi.org/10.1007/978-3-319-99885-5\\_2](https://doi.org/10.1007/978-3-319-99885-5_2)
  - Publication: Proceedings of WAF 2018. (ISBN: 978-3-319-99884-8) (pp: 16-30)
  - Date: November 2018
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- Authors: J. del Egidio, L.M. Bergasa, E. Romera, **Carlos Gómez Huélamo**, Araluce, R. Barea
  - Title: Self-Driving a Car in simulation through a CNN
  - Type of participation: PRESENTATION AND BOOK CHAPTER WITH ISBN
  - Congress: 19th International Workshop of Physical Agents (WAF 2018). [https://doi.org/10.1007/978-3-319-99885-5\\_3](https://doi.org/10.1007/978-3-319-99885-5_3)
  - Publication: Proceedings of WAF 2018. (ISBN: 978-3-319-99884-8) (pp: 16-30)
  - Date: November 2018
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- Authors: E. Enriquez, N. Gordillo, L.M. Bergasa, E. Romera, **C.G. Huélamo**
  - Title: Convolutional Neural Networks vs Traditional Methods applied to off-line Recognition of Handwritten Digits
  - Type of participation: PRESENTATION AND BOOK CHAPTER WITH ISBN
  - Congress: 19th International Workshop of Physical Agents (WAF 2018). [https://doi.org/10.1007/978-3-319-99885-5\\_7](https://doi.org/10.1007/978-3-319-99885-5_7)
  - Publication: Proceedings of WAF 2018. (ISBN: 978-3-319-99884-8) (pp: 16-30)
  - Date: November 2018

## Technical skills

- **Advanced level:**

Computer Vision  
LiDAR, Camera  
Autonomous Vehicles  
Multi-Object Tracking and Sensor Fusion algorithms  
Docker, Linux  
C++, MATLAB, Python

- **Intermediate level:**

ROS  
Git  
Artificial Intelligence / Machine Learning / Deep Learning  
CARLA and V-REP simulators for autonomous driving  
Jetson NVIDIA embedded systems

- **Basic level:**

ROS2  
Kubernetes

Soft skills

Languages

Self-assessment  
European level (\*)  
English

Other information

- Communication skills, **teamwork** and **leadership**, especially in **multicultural** environments
- **Adaptability**. **Lateral** and **critical** thinking
- **Motivation** for **entrepreneurship** and **self-criticism**
- Deep **self-taught** consciousness

Comprehension		Speaking	Writing
Listening	Reading		
C1	C1	C1	C1

(\*) *Common European Framework of Reference Level (MECR)*

- Car license B. Own vehicle.
- Hourly and geographic availability
- Collegiate N° **25843** by the General College of Graduates in Industrial engineers in Spain
- Black belt 1º DAN recognized by the Madrid Karate Federation (FMK)