

# PEDRO HERRUZO SÁNCHEZ

Machine Learning Consultant & Data Scientist at SEAT,S.A.  
Associate Pre-doctoral Research Fellow at IARAI  
Ph.D. Student in AI at the Polytechnic University of Catalonia

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## EXPERIENCE

### Associate Pre-doctoral Research Fellow

#### Institute of Advanced Research in Artificial Intelligence - IARAI

📅 Feb 2020 - Present · +3 mos    📍 Vienna, Austria

Rule detection and generalization in Deep Learning applied to geo-spatial data.

### Machine Learning Consultant & Data Scientist

#### SEAT, S.A.

📅 Sep 2017 - Present · +2 yrs    📍 Barcelona, Spain

Leading Machine Learning related tasks in projects related to future urban mobility:

- Mobility Advisor (presented in MWC 19 together with IBM).
- Socially Responsible Navigation (presented in SCEWC 18 together with Waze and the city council of Barcelona).

### Research Scholarship

#### University of Barcelona

📅 Sep 2016 - Jul 2017 · 11 mos    📍 Barcelona, Spain

Graduate Student Researcher at the CVUB group (ub.edu/cvub/) under the supervision of professor Petia Radeva: Deep Learning methodologies applied to Egocentric images.

### BI Consultant

#### Indra Sistemas, S.A.

📅 May 2014 - Feb 2016 · 1 yr 10 mos    📍 Barcelona, Spain

Exploitation of Data Warehouse Commercial Segurcaixa, Vidacaixa: Gathering requirements, functional and technical definition, designing and developing ETL processes with SAP BO, PowerCenter, Oracle and Control-M.

## HONORS AWARDS



#### NeurIPS2019 Workshop: Outstanding Contribution

Traffic4cast competition by the Institute of Advanced Research in Artificial Intelligence (IARAI) and HERE Technologies.



#### Climate Change Challenge 2019: 3th position

Organized by the University of Barcelona, ISGlobal, and Ajuntament de Barcelona: Modeling the weather in the city of Barcelona.



#### Big Data & AI Congress Barcelona 2018: Best Master Thesis

We analyzed first-person stories automatically by means of ego-centric pictures acquired with wearable cameras using AI.



#### DKV Seguros Health4Good 2016: Ideas Contest for Startups

Second prize: an App that can create nutrition diaries automatically from only pictures, also proposing healthy eating habits.

## EDUCATION

### Ph.D. in Artificial Intelligence and Smart Mobility

#### Polytechnic University of Catalonia

📅 2017 - 2020    📍 Barcelona, Spain

Explainable Graph Neural Networks, Recurrent Neural Networks, and its Applications into Traffic Forecasting in Cities.

### Summer School · Deep Learning Indaba 2019

#### Kenyatta University

📅 Summer 2019    📍 Nairobi, Kenya

Strengthen African Machine Learning.

### M.Sc. in Fundamental Principles of Data Science

#### University of Barcelona

📅 Sep 2016 - Jun 2017    📍 Barcelona, Spain

### Double B.Sc. in Computer Engineering and Mathematics

#### University of Barcelona

📅 Sep 2010 - Jan 2016    📍 Barcelona, Spain

#### University of Groningen - Erasmus

📅 Feb 2016 - Jul 2016    📍 Groningen, Netherlands

### B.BA. in Business Administration and Management

#### University of Barcelona

📅 Sep 2008 - Jun 2010    📍 Barcelona, Spain

## TEACHING

### Teaching Assistant

#### Pompeu Fabra University

📅 Sep 2018 - Present    📍 Barcelona, Spain

Intro to Programming: 1st-year / Python.

#### University of Barcelona

📅 Jan 2017 - Sep 2017    📍 Barcelona, Spain

- Data Structures: 1st-year / C++.
- Operating systems I: 2nd-year / C.

## PUBLICATIONS


### Conference Proceedings

- Herruzo, Pedro and Josep L. Larriba-Pey. "Recurrent Autoencoder with Skip Connections and Exogenous Variables for Traffic Forecasting". In: *Traffic4cast Workshop, Conference on Neural Information Processing Systems (NeurIPS) 2019*. URL: <https://arxiv.org/abs/1910.13295>.
- Herruzo, Pedro et al. "Towards Objective Description of Eating, Socializing and Sedentary Lifestyle Patterns in Egocentric Images". In: *EgoApp Workshop, British Machine Vision Conference (BMVC) 2019*.
- – (2017). "Analyzing First-Person Stories Based on Socializing, Eating and Sedentary Patterns". In: *ICIAP Workshops*. Vol. 10590. Lecture Notes in Computer Science. Springer, pp. 109–119. URL: <https://arxiv.org/pdf/1707.07863.pdf>.


### Journal Articles


- Herruzo, P., M. Bolaños, and P. Radeva (2016). "Can a CNN recognize Catalan diet?" In: *AIP Conference Proceedings* 1773.1, p. 020002. DOI: 10.1063/1.4964956. eprint: <https://aip.scitation.org/doi/pdf/10.1063/1.4964956>. URL: <https://aip.scitation.org/doi/abs/10.1063/1.4964956>.


## TALKS


 **1 Recurrent Autoencoder with Skip Connections and Exogenous Variables for Traffic Forecasting**  
Dec 2019 · Vancouver, Canada · NeurIPS: Traffic4cast Challenge Spotlight.


 **Towards Objective Description of Eating, Socializing and Sedentary Lifestyle Patterns in Egocentric Images**  
Sep 2019 · Cardiff, UK · British Machine Vision Conference.

 **2 Keeping Society Moving In A Connected World**  
Feb 2019 · Barcelona · 4YFN, side event of the Mobile World Congress with Avichai Bakst, Director of Business Development at Waze.

 **3 Socially Responsible Navigation**  
Nov 2018 · Barcelona · Smart City Expo World Congress, with Luca de Meo (president of SEAT, S.A.), and Jordi Caus (head of future urban concepts).

 **4 Big Data Talent Awards for the best master thesis**  
Nov 2018 · Big Data & AI Congress Barcelona Congress, with Laura Portell and Alberto Soto.

 **Barcelona towards a data-driven City: When data is the key infrastructure**  
Oct 2018 · Barcelona · Open Data Barcelona (round-table).

 **SEAT S.A. from a Car Manufacturer to a Mobility provider**  
Nov 2017 · Barcelona · IOT Solutions World Congress, with Josep L. Larriba-Pey (Co Founder of Sparsity Technologies).

## ABOUT ME

*"I am a technology enthusiast, with a strong technical background in machine learning, math and programming, and the experience to bring these fields together to create useful real-life applications. Throughout my life, I have had the opportunity to develop proficient public speaking, teamwork, time management, and leadership skills. I take pleasure in overcoming challenges and being creative, dedicated, and proactive. I enjoy human relations and like getting involved in and helping to manage social activities."*

## STRENGTHS

Communication Management  
Social Skills Strategy

Machine Learning Computer Vision  
Graph Neural Networks Explainable AI  
Recurrent Neural Networks  
Caffe, Keras, PyTorch

C C++ C# Java Matlab  
Python R

CSS HTML Javascript

## LANGUAGES

Catalan ●●●●●

English ●●●●●

Spanish ●●●●●

<sup>1</sup>[https://youtu.be/8y\\_PwiY9C5M?t=2681](https://youtu.be/8y_PwiY9C5M?t=2681)

<sup>2</sup><https://youtu.be/qERNVyb1Z8?t=628>

<sup>3</sup><https://www.youtube.com/watch?v=Qo0mbgm5sHA>

<sup>4</sup><https://www.youtube.com/watch?v=cqcCK3YHDV&t=4m13s>