

# PEDRO HERRUZO SÁNCHEZ

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 · +1 yrs

Vienna, Austria

Deep Learning for Spatio-Temporal Data: Data Fusion (Multimodal & Multiresolution), Transfer Learning / Few-Shot Learning, and Modeling Sparse Events.

Machine Learning Consultant & Data Scientist

**SEAT, S.A.**

Sep 2017 - Sep 2020 · 3 yrs

Barcelona, Spain

Leading Machine Learning for 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 egocentric 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

Deep learning for Spatio-temporal data with applications to mobility and weather forecasting

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 (2020). "Recurrent Autoencoder with Skip Connections and Exogenous Variables for Traffic Forecasting". In: *Proceedings of the NeurIPS 2019 Competition and Demonstration Track*. Ed. by Hugo Jair Escalante and Raia Hadsell. Vol. 123. Proceedings of Machine Learning Research. PMLR, pp. 47–55. URL: <http://proceedings.mlr.press/v123/herruzo20a.html>.
- Kreil, David P et al. (2020). "The surprising efficiency of framing geo-spatial time series forecasting as a video prediction task – Insights from the IARAI 4c Competition at NeurIPS 2019". In: *Proceedings of the NeurIPS 2019 Competition and Demonstration Track*. Ed. by Hugo Jair Escalante and Raia Hadsell. Vol. 123. Proceedings of Machine Learning Research. PMLR, pp. 232–241. URL: <http://proceedings.mlr.press/v123/kreil20a.html>.
- Herruzo, Pedro et al. (2019). "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.

<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>

## 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  
Explainable AI Transformers  
Graph Neural Networks  
Recurrent Neural Networks  
Spatio-Temporal Data  
Caffe, Keras, PyTorch

C C++ C# Java Matlab  
Python R

CSS HTML Javascript

## LANGUAGES

Catalan ●●●●●

English ●●●●●

Spanish ●●●●●



### **Barcelona towards a data-driven City: When data is the key infrastructure**

Oct 2018 · Barcelona · Open Data Barcelona (round-table).

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### **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).