




# Pablo Ruiz


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## EXPERIENCE

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### Deep Learning Researcher

*Harvard University, SEAS – Massachusetts, USA*

*(July 2018 – February 2019)*

- Research on designing techniques to accelerate ensembles of deep convolutional neural networks and study scenarios comparing ensemble of small networks against a single very deep network.
  - Research on developing strategies to improve computation efficiency and generalization during inference.
- Tech: PyTorch, AWS, Azure, Dash, DataShader, SCRUM

### Data Scientist

*Accenture Applied Intelligence, Supply Chain and Operations – Madrid, Spain*

*(April 2018 – July 2018)*

- I worked on the warranty strategy definition for CNHI and the detection of epidemic batches on the vehicles.
  - I collaborated with the Computer Vision group at Barcelona creating a tool for optical character recognition on handwritten tolerance measurements for Airbus.
- Tech: Python, R, QlickSense

### Machine Learning Engineer

*Luxembourg Institute of Science and Technology, Advanced Analytics*

*(Sep 2017 – Mar 2018)*

- Forecasting of the behavior of the temperature and silicon content on the metal produced on a blast furnace for Paul Wurth steel maker company with a Deep Learning LSTM model.
  - Machine Learning model implementation for anomaly detection on polymer extruders for Tetra Pak.
- Tech: Keras, R, MATLAB

### Data Team Responsible and Coordinator

*Atos Major Events – Taipei, Taiwan & Mokpo, South Korea*

*(Jul 2017 – Sep 2017) & (Jun 2015 – Jul 2015)*

Responsible of the football venue for the data acquisition, storage and load during the Universiade 2015 in South Korea and repeated for the Universiade 2017 in Taiwan. In charge of the accessibility of live data and the training and coordination of the volunteers' team for the data acquisition.

### QA Software Engineer Intern

*Typeform, Product Growth – Barcelona, Spain*

*(Sep 2016 – Feb 2017)*

- Analysis of the conversion of free account users to premium through the development of AB testing.
- Agile and scrum work orientation following Test-Driven Development methodology

## EDUCATION

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### Master's Degree in Visual Analytics, Big Data and Machine Learning

*La Rioja International University*

*(2016 – 2018)*

*Grade: 8.9 / 10.*

### Master of Engineering

*Catalonia Polytechnic University*

*(2015 – 2017)*

*Grade: 8.2 / 10.*

### Bachelor of Engineering

*Madrid Polytechnic University*

*(2011 – 2015)*

*Grade: 7 / 10.*

\* **Achievements:** Top-1 student finishing in the minimum of 4 years.

## PROJECTS

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### Lazarillo - ParisTech

[LAZARILLOPROJECT.GITHUB.IO](https://LAZARILLOPROJECT.GITHUB.IO)

Lazarillo aims to build the ImageNet for blind people to create Image Captioning and Question and Answer Models focused on data gathered from blind volunteers.

### DNA-Visualization - Lab41, Harvard University

[DNAVISUALIZATION.ORG](https://DNAVISUALIZATION.ORG)

Browser application that turns raw DNA files uploaded by the users into interactive 2D visualizations for sequence comparison and analysis. A publication is currently under review by *Nucleic Acids Research*.

### PMMA-Model - Technical School of Buenos Aires

[GITHUB.COM/PABLORR100/PMMA-MODEL](https://GITHUB.COM/PABLORR100/PMMA-MODEL)

Mathematical Model of a novel technique for the polymerization of MMA using MATLAB during a visiting on the Material Science Laboratory to assess the evolution of the conversion and the molecular weight distribution.

### Experiment Factorial Design - Technical School of Madrid

[GITHUB.COM/PABLORR100/FACTORIAL-DESIGN](https://GITHUB.COM/PABLORR100/FACTORIAL-DESIGN)

Collaboration between the Organic Chemistry and the Industrial Computing departments. Web-application for the prediction of chemical reactions and the collaborative population of the database by the students.

## EXTRAORDINARY TRAINING

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### Applied Machine Learning Course

*(November 2018 – March 2019)*

*Columbia University / Emeritus - The Fu Foundation School of Engineering and Applied Science*

- Probabilistic approach following the C. Bishop book "Pattern Recognition and Machine Learning."
- Real-world business scenarios to apply the concepts along with Discussion sessions.

### Udacity – Deep Reinforcement Learning Nanodegree

*(Aug 2018 – Jan 2019)*

- Navigation on Unity Bananas World environment using DQN and Double-DQN.
- Train virtual double-jointed robotic arm with different strategies: DDPG and PPO
- Multi-Agent playing Unity Tennis environment using MA-DDPG.

### Udacity – Computer Vision Nanodegree

*(May 2018 – Aug 2018)*

- Design a facial key point detector for estimating face poses.
- Build a CNN+LSTM architecture for image captioning.
- SLAM Graph implementation of an agent on a 2D environment.

### Udacity – Artificial Intelligence Nanodegree

*(Dec 2017 – Mar 2018)*

- Develop an adversarial search agent to play deterministic 2 two-player game with perfect information.
- Develop a planning search agent to solve deterministic logistics problem for Air Cargo transport system.

## SKILLS

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### - Communication and Leadership

I write on my website and the online publication Towards Data Science about ML. I have been responsible of the data acquisition team, above 20 volunteers, on South Korea and Taiwan during two football competitions.

### - Proactivity

For one year I was taking two master's degree while working abroad.  
I also have experienced working on 7 different countries and cultures.

### - Diversity

I have an engineering background specialized in chemistry and materials. I have been learning programming since 2011 to integrate computer science benefits on my interests during my studies.

## COMPUTER SCIENCE

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<b>Programming</b>	Python, MATLAB, C/C++, JavaScript, SQL, R, Bash
<b>Frameworks</b>	PyTorch, TensorFlow, Keras, OpenCV, Scikit-learn, Django
<b>Software Tools</b>	Git, AWS, Azure, Docker, Spark, GPU, SLURM
<b>Visualization Tools</b>	Plotly-Dash, Tableau, QlickSense, Shiny, D3.js
<b>Databases</b>	MySQL, PostgreSQL, MongoDB

## AWARDS

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**IMFAHE:** Excellence's Fellowship for the Advancement of Higher Education (2018)

## LANGUAGES

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**Spanish:** Native

**English:** Professional – TEOFL iBT: 107 (C1) – December 2018

## VOLUNTEER

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**Udacity:** Student Mentor during the PyTorch Deep Learning Challenge (2018)

I gave support to a disabled student to understand the foundations of deep learning and to be among the 300 best out of 10.000 students and to earn the PyTorch scholarship to fund the Nanodegree Program in Deep Learning.

## REFERENCES

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### **Prof. Stratos Idreos**

Harvard University - Relation: Supervisor

*Harvard John A. Paulson School of Engineering and Applied Sciences*

[stratos@seas.harvard.edu](mailto:stratos@seas.harvard.edu)

### **Prof. Dr. José Alberto Jaén Gallego**

Polytechnic University of Madrid - Relation: Supervisor

*Department of Automatic, Electric and Electronic Engineering and Industrial Computing*

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### **Alexandru Tartar, PhD**

Luxembourg Institute of Science and Technology - Relation: Senior

*Department of Advanced Analytics*

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