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# Máximo Fernández Núñez

## Deep learning engineer

+10 years of experience. Experience in the development of artificial intelligence systems based on neural networks for the area of edge vision. Use of technologies such as Pytorch, Deepstream, TensorRT, Python, C, C++, bash, docker, git.

## MOST RECENT WORK EXPERIENCE

### Deep learning engineer at Senner Aeroespacial

September 2022 - Present

#### RESPONSIBILITIES

- Create neural network architecture for computer vision perception of ground vehicles in unstructured environments.
- Optimise the machine on which all the algorithms for both perception and guidance will run.
- Lead the artificial intelligence group, to perform edge vision tasks, such as retraining and processing offline data.

#### KEY ACCOMPLISHMENTS

- I proposed a neural network architecture by which, in a Jetson, both segmentation of the environment, object detection and classification, and depth estimation could be performed.
- I shared my knowledge with the deep learning group, to empower them to create better solutions together and do it faster.
- I mentored an intern so he could grow professionally.

### Deep learning engineer at Arquimea

August 2019 - July 2022

#### RESPONSIBILITIES

- Computer vision algorithms. Researching and creating proofs of concept and introducing new technologies to the team.
- UAV electronics: Leading new designs both HW and FW. Choosing the right people to do them and explaining the concepts to them.
- Mentor others to accelerate their professional growth and encourage them to get involved.
- Challenge the team's processes, looking for ways to improve them.

## KEY ACCOMPLISHMENTS

- I introduced video processing in the UAV, making this new functionality an added value and setting us apart from the competition.
- I developed the vision algorithms in such a way as to rule out the use of commercial devices costing €2000 per unit. This is a big saving per UAV, so that they can be sold more cheaply and stand out in the market.
- Thanks to a prototype that geo-positions itself without GPS, a new line of research for future UAVs for technological warfare has been opened up.

## Electronic engineer at Arquimea

October 2019 - August 2019

### RESPONSIBILITIES

- HW and FW: Design and create new technologies that are widely used by internal or external teams.
- Evolving the architecture to support future requirements.
- Proactively supporting other team members and helping them to succeed
- Challenge the team's processes, looking for ways to improve them.

### KEY ACCOMPLISHMENTS

- Before my arrival there was a different HW design for each UAV and for each ground station. I unified the designs into one. This meant that 80% of the FW development of one UAV was inherited by the other UAV, thus saving months of development. It also eliminated duplicate designs doing the same thing.

## Electronic engineer at Indra

May 2014 - October 2019

Hardware and Software design

## Trainee at Indra

January 2013 - Mayo 2014

Hardware and Software design

## PERSONAL PROJECTS

- Developing an [introductory deep learning with Pytorch](#) course in Spanish
- [Pose estimation](#): Get body pose
- [Video segmentation](#): Segmentation of frames os video
- [Super smooth video](#): Increase the FPS of a video
- [Depth video](#): Obtain the depth of a scene using deep learning
- [Deep fake](#)
- [Face recognition](#) using classical computer vision algorithms

# COMPETITIONS

- [HuBMAP + HPA - Hacking the Human Body](#): Image segmentation of organs to detect functional tissue units (FTUs)
- [SIIM-ISIC Melanoma Classification](#): Detect melanomas in moles through photos
- [Rainforest Connection Species Audio Detection](#): Recognize animals through jungle audios
- [Hash Code Archive - Drone Delivery](#) (**3rd position**): Optimize the routes of drones that have to deliver packages to customers
- [Cassava Leaf Disease Classification](#): Detect diseases in plants through photos

# SKILLS

- |                 |            |              |
|-----------------|------------|--------------|
| • Deep learning | • TensorRT | • Matplotlib |
| • Pytorch       | • Numpy    | • Git        |
| • Python        | • Pandas   | • Bash       |
| • Deepstream    | • Docker   |              |

# EDUCATION

**Electronic engineering at the Universidad Complutense de Madrid (2005-2001)**

# LANGUAGES

Spanish and English.