PABLO MANRESA NEBOT

Junior Computer Engineer with a background in Machine Learning engineering/researcher or Data Science. Interested in Autoencoders and generative deep learning algorithms. I also am interested in meta-learning and in heuristic algorithms in order to solve problems.

CONTACT

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Pablo Manresa

SKILLS

Programming languages

Python	**5 years**
R	**2 years**
Bash	**3 years**
C++	**4 years**
LaTeX & Markdown	**3 years**
SQL	**1 year**
Java	**1 year**
Go	**1/2 year**

Algorithms

Graphs	**2 years**
Metaheuristics	**2 years**
Exacts	**3 years**

Operating Systems

Linux	**7 years**
(Arch Linux, CentOS, Ubuntu...)	
Windows	**7 years**

Software & herramientas

Visualization	**4 years**
(matplotlib, seaborn, plotly)	
Data analysis	**4 years**
(numpy, scipy, pandas, Dplyr, STL)	
Machine Learning	**4 years**
(sklearn, MASS, CARET, E1071, ...)	
Deep Learning	**4 years**
(tensorflow, keras, Pytorch)	
Computer Vision	**4 years**
(OpenCV, skimage, PIL, torchvision, nibabel)	
Math tools	**2 years**
(SymPy, Geogebra, wxMaxima, SciPy)	

Big Data tools

Amazon AWS	**< 1 year**
Docker	**< 1 year**

Languages

English - Professional
Spanish - Native

INFORMATION

Machine and Deep Learning background focused mainly on supervised learning. In addition, I have worked with computer vision algorithms and image processing. I enjoy programming with C and C++ during my spare time.

EXPERIENCE

2019-2021
Freelancer.
During this period I worked on several community and personal projects. Most of them were focused on Machine Learning, Data Science and Computer Vision tasks.

2021 - Present
Machine Learning Researcher at the university of Granada.
During this work, I have been revisiting the PAC theory as well as the Bayesian theory for implementing PAC upper bounds. Besides, I have been exploring the Machine Learning theory as well as Gaussian Processes. The goal was to implement upper bounds in order to compute the error rate of statistical classifiers in a statistical agnostic mapping tool.

In this project I have worked with Python, Tensorflow, GPy as well as the main data science tools.

EDUCATION

2016 - 2020
University of Granada, Granada
Computer Science Degree.
Specialized in Artificial Intelligence.

2021 - 2022
University of Alicante, Alicante
MSc in Data Science and Machine Learning
Score 9/10.

2022 -
University of Alicante, Alicante
PhD: Deep Learning and Computer Vision

ACHIEVEMENTS

- IEEE Publication of: Estimating the Severity of Alzheimer's Disease Using Convolutional Neural Networks and Magnetic Resonance Imaging Data at 2020 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC).
- Finalist of FacePhi Challenge 2022. Which consisted of solving a business biometry problem with teams of 3 people. However, I got the second position participating on my own. My solution: `https://github.com/bitblayde/FacePhi_Challenge_2022`.

PROJECTS

Alzheimer detection: This was the project I presented during my bachelor thesis. Specifically, I implemented convolutional neural networks for discriminative tasks and another one for measuring the disease phase, using 3D volumetric images as inputs. The tools I used were Python, Keras and Nibabel.

Meta-learning: During my MSc thesis, I reviewed the state of the art for meta-learning and I implemented some of those algorithms for solving a few-shot learning task with Pytorch.

Cifar-10 models: For learning purposes, I read some papers about the most important convolutional architectures and I decided to implement them on my own. Python and Pytorch were the tools I used. `https://github.com/bitblayde/Pytorch_CNN_cifar10`

Nonlinear Optimization: Through this project, I implemented several optimization algorithms to optimize problems with mathematical functions and datasets. Specifically, optimization algorithms that make use of derivatives such as Gradient Descent, SGD, Newton... In addition, I implemented mathematical methods for choosing a learning rate that satisfies Wolfe and Armijo conditions. I used Python. `https://github.com/bitblayde/Non-linear-Optimization`

Statistical-Learning: While I was reading the book "An Introduction to Statistical Learning: With Applications in R" I proposed my own solutions to the exercises I found more challenging. For this project I have used the R language. `https://github.com/bitblayde/Statistical-Learning`

NLP: I made 2 relevant projects using NLP techniques, the first one consisted of a GRU network to detect Reber language. On the other hand I implemented 3 models for generating text in a Shakespearean way, using stateless and stateful RNN and a bidirectional GRU. I used Python, Tensorflow and Keras. `https://github.com/bitblayde/Machine-and-Deep-learning-projects/tree/main/NLP`

Other: Other relevant projects I did, were Computer vision algorithms for detecting contours or implementing my own filters. Afterwards, I implemented an autoencoder for an image segmentation task. Regarding data mining I also implemented notebooks in a Kaggle format with tabular data, using tools like Sklearn, pandas, Plotly, Seaborn, Tensorflow and so on. `https://github.com/bitblayde/Data-mining`, `https://github.com/bitblayde/Machine-and-Deep-learning-projects`.