PEDRO F DA COSTA

PhD Researcher - Machine Learning Applied to Neurosciences

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EDUCATION

King's College London & Birkbeck College

PhD Researcher - Computational Neuroscience

April 2019 – April 2022 London, UK

Leveraging methods in **active sampling, autoML and Bayesian optimization** to build new tools for neuroscience research.

Building new computational models of learning based on **embodied agents and reinforcement learning**.

Imperial College London

Computational Cognitive and Clinical Neuroimaging Lab

Jan 2018 – Sep 2018 London, UK

MSc Thesis - Visiting Student

Mark = 18/20

Instituto Superior Técnico

MSc in Biomedical Engineering

Oct 2016 – Sep 2018 Lisboa, PT

Mark = 18/20 (Hons)

Some included modules:

- Machine Learning
- Decision Support Models
- Health Informatics
- Information Systems and Databases

COMPLEMENTARY EDUCATION

Machine Learning Summer School - Tübigen

July 2020 online

Neuromatch Academy - Observer's track

August 2020 online

ACHIEVEMENTS

- Designed and **delivered lectures on Machine Learning** as part of MSc Neurosciences @ Kings College London
- Created, debugged, released and maintained an open-source **scikit-learn compliant version of the RVM algorithm**.
- PAC2019 Predicting brain age competition- **Top 10 out of 79 teams**
- King's College Neuroimaging Hackathon (2019) - **1st Place**
- Kaggle APTOS 2019 Blindness detection - Top 30%
- Roller Hockey National University League - 1st Place (2015)
- Captained the Portuguese Floorball University Team in the World University Championship (2016)

SKILLS

Python, C#, TF, Keras, sklearn ●●●●●
Unity, ML Agents, MATLAB ●●●●○
PyTorch ●●●○○

HONORS & AWARDS

- Awarded **EU Marie Sklodowska-Curie Actions (MSCA ITN) Grant** - Horizon 2020
- Awarded Merit Certificate at IST for the academic years 16/17 and 17/18
- Awarded 2 Erasmus travel grant (2016 - Istanbul, 2018 - London)

WORK EXPERIENCE

Heart Genetics

Internship - Data scientist

2017 Lisbon, PT

Applied skills in Machine Learning, statistics and R by studying correlations of imputed variants with real genetic data.

Champalimaud Foundation

Internship - Research Assistant

2015 Lisbon, PT

Gave support in task development to two PhD projects in Renart's Lab

AIESEC India

International Volunteering

2015 Ahmedabad, In

PROJECTS

Sklearn - RVM

- Created and maintain an open-source RVM implementation in Python, fully compatible with sklearn, which currently does not provide the algorithm.

ModelZoom

- Developed an AutoML solution, through space of machine learning algorithms that, by means of Bayesian Optimization, finds the optimal models to solve any dataset in a small number of iterations.

Cognitive Tablet Battery

- Developed a tablet battery of cognitive tasks aimed at phenotyping children with Autism.

PUBLICATIONS

- Costa, P. da, J. Dafflon, and W. Pinaya (2020). "Brain-age prediction using shallow machine learning: Predictive Analytics Competition 2019". In: *In review*. URL: https://bit.ly/33F1YxY.
- Costa, P. da, R. Lorenz, et al. (2020). "Bayesian Optimization for real-time, automatic design of face stimuli in human-centred research". In: *ICML2020 - WS AutoML*. URL: https://www.automl.org/wp-content/uploads/2020/07/AutoML_2020_paper_58.pdf.
- Pinaya, W. et al. (2020). "Normative modelling using deep autoencoders: a multi-cohort study on mild cognitive impairment and Alzheimer's disease". In: *bioRxiv*. URL: https://www.biorxiv.org/content/10.1101/2020.02.10.931824v1.full.pdf.
- Costa, P. da, S. Popescu, et al. (2019). "Elucidating Cognitive Processes Using LSTMs". In: *CCN2019*. URL: https://ccneuro.org/2019/proceedings/0000272.pdf.
- Costa, P. da, R. Nunes, and R. Leech (2018). "Application of Artificial Neural Networks for modelling cognitive dimensions". In: *Master Thesis*. URL: https://pedroferreiradacosta.github.io/files/daCosta_Master_thesis.pdf.