

PEDRO F DA COSTA

PhD Researcher - Machine Learning Applied to Neurosciences

📍 London, UK

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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 quantized variational auto-encoders for **anomaly detection** in brain imaging.

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 - Tübingen

📅 July 2020 📍 online

Turing Reinforcement Learning Study Group

📅 February 2021 📍 online

🏆 ACHIEVEMENTS

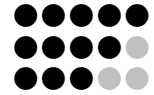
- Designed and **delivered lectures on Machine Learning** as part of MSc Neurosciences @ Kings College London
- Created, debugged, released and maintained an open-source **scikit-learn compliant version of the RVM algorithm**.
- PAC2019 Predicting brain age competition- **Top 10 out of 79 teams**
- King's 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, TF, Pytorch, sklearn

Unity, MATLAB, C#

ML Agents



HONORS & AWARDS

- Awarded EU Marie Skłodowska-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 - (Link)

- 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

- Baecker, Lea et al. (2021). “Brain age prediction: A comparison between machine learning models using region- and voxel-based morphometric data”. In: *Hum. Brain Mapp.* ISSN: 10970193. DOI: 10.1002/hbm.25368.
 - 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.
 - Da Costa, Pedro F., Jessica Dafflon, and Walter H. L. Pinaya (2020). “Brain-Age Prediction Using Shallow Machine Learning: Predictive Analytics Competition 2019”. In: *Frontiers in Psychiatry* 11, p. 1367. ISSN: 1664-0640. DOI: 10.3389/fpsy.2020.604478. URL: <https://www.frontiersin.org/article/10.3389/fpsy.2020.604478>.
 - Dafflon, Jessica et al. (2020). “Neuroimaging: Into the multiverse”. In: *arXiv*. ISSN: 26928205. DOI: 10.1101/2020.10.29.359778.
 - 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.
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