

ANA SOUSA

AI Research Engineer



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Ambitious engineer pursuing my passion and willing to improve. The ideal next step in the career of such a motivated engineer is to contribute to the research and development of technologies that can improve people's lives. I really value being in an international/diverse and innovative environment that encourages the continuous development of personal skills and knowledge.

AWARDS



3rd Place - World Data League 2023

Member of the team 'CEOS'. We finished the international competition in **3rd** place among **29** teams of best minds in Data Science.

AI EXPERIENCE/INTERESTS:

Machine Learning for Production (MLOPs):

Professional experience @Bosch

Projs & repository: [MLOPs_Specialization](#)

Training by @Google @TensorFlow @DeepLearning.AI

Natural language Processing & Large Language models:

Professional experience @Utwente

Projs & repository: [NLP_LLM](#)

Training by @LAMINI @Google Cloud @AWS @DeepLearning.AI

2D/3D Computer Vision:

Professional experience @InescTech

Projs & repository: [Advanced_CV](#)

Training by @TensorFlow @DeepLearning.AI @HuggingFace

Generative AI (Gen AI):

Professional experience @Utwente

Projs & repository: [Master Thesis: NLP_LLM](#)

Training by @LAMINI @Google Cloud @AWS @DeepLearning.AI @HuggingFace

Other ML Topics (github repository [AMfeta99](#)) : Time-series & forecasting; Anomaly detection; Reinforcement Learning, etc..

SKILLS

Languages:

Portuguese (native)
English (advanced)
Spanish (beginner)
Dutch (beginner)

Soft-Skills:

Adaptability
Team communication/work
Problem solver & Proactive
Empathy
Curiosity

Machine Learning Tools:

Data Manipulation (Pandas, Numpy, Scipy)
Machine Learning (Scikit- Sklearn, Tensorflow, Keras)
Prog Languages (Python, Matlab, C++, SQL)

WORK EXPERIENCE



AI Researcher & Solution Developer

2023 - Present (10 months)

- Connected manufacturing project (Sensors, 5G and AI).
- Understand the whole system and provide the appropriate AI algos in the area of Audio processing, MLOps, efficient Pipeline creation for AI continues learning and deployment

Keywords: MLOps, Abnomaly Detection, Classification, Signal Processing, Tensorflow, Keras



Researcher

2021-2023 (2 years & 2 months)

Section of Cognition, Data and Education | BMS faculty UT | Enschede, NL

- Domain translation of Clinical Neurophysiological research questions/needs into Data Science and ML/DL fields. This mediating capacity allowed successful collaboration of CoDE and CNPH groups, boosting the development of project and clinical validation.
- Publication of the developed unsupervised and semi-supervised deep learning pipelines for detection of EEG anomalies.
- Implementation and optimization of robust algorithm with a sensitivity of **81.9%** and a specificity of **91.7%**

Keywords: EEG, Abnomaly Detection, Autoencoder, VAE, VAE-GANs, Diffusion Models, Gen AI, Signal Processing, Tensorflow, Keras,

Researcher intern

Clinical Neurophysiology Group (CNPH) | TechMed Center UT | Enschede, NL

- Review of state-of-the-art approach for captioning in image/signal/video and inspired on that development, troubleshooting and comparison of 6 pipelines for EEG captioning.
- Presentation and defense of the thesis before a prestigious jury composed of AI and neurologist experts, having obtained the grade of **19/20**, result of **excellence** (among 10% of higher grades).
- Awarded for the performance in the master's thesis "Learning to write medical reports from EEG data." with a job position as Researcher.

Keywords: Attention models, Captioning, Classification, Video, Image, Time-series, Encoder-Decoder, NLP, Numpy, SciPy

Researcher intern

Clinical Neurophysiology Group (CNPH) | TechMed Center UT | Enschede, NL

- Research and implementation of various data augmentation approaches, from traditional signal transformation to more complex data approach, generative models like GANs.
- Proposing and explore the use of different forecasting models for data augmentation.
- Provided important insight into EEG properties and behavior/potential of different approaches, stimulated further research and emergence of new projects.
- Invited to develop a master's thesis at the institution, after obtaining the **Excellent** grade, **19/20** in this Erasmus+ internship, "GANs and Data Augmentation Prediction Models in the Detection of Interictal Epileptiform Discharges (IEDs)".

Keywords: Time-series, Biosignal, GANs, CNN, LSTM / GRU and hybrid models.



Summer Internship

2020-2021 (6 months)

Visual Computing and Machine Intelligence Group | INESC Technology and Science | Porto, PT

- Impact of facial dynamic fusion information and DBN in the performance of Drowsiness detector (AUTOMOTIVE project.)
- Collaboration with other master and PhDs students for the development of robust Drowsiness detector system to detect driver fatigue.

Keywords: Computer Vision, Facial dynamic fusion, DBN, OpenCV, Scikit-learn

Researcher intern

Biomedical Imaging Lab from C-BER | INESC Technology and Science | Porto, PT

- Characterized lesions associated with lung cancer, using an annotated computed tomography dataset.

Keywords: CT scans, Neural networks, Computer Vision, Image Segmentation

EDUCATION



ERASMUS+ Internship

Institution: Faculty of Science and Technology, University of Twente

February 2022 to August 2022

February 2021 to July 2021

Final Grade: 19 / 20 (A)

Final Grade: 19 / 20 (A)



Bachelor & Master in Bioengineering - Biomedical Engineering

Institution: Faculty of Engineering, University of Porto

2017 - 2022

Final Grade: 18 / 20 (A)

HOBBIES

Member:

2021-2022



Institution: IEEE student Branch

Member of IEEE Engineering in Medicine and Biology. Organize workshops, and collaborate in the development of EMBS projects together with other students

Sports:

Swimming (federated athlete)

2009 - 2014

Athletics (federated athlete)

2013 - 2019

Volunteer staff:

2022- 2023



Tankstation: Multicultural foundation with sociocultural meeting place that organizes and promotes musical, artistic and cultural activities and prepares food from around the world.

Dance (Lindy hop)

2023 - Present



Green Vibration: Event organization & Bartender in a truly unique music festival with its own distinct identity with 3000 attendees and multiple stages in 10 years time.

OTHER INTERESTS

Music; Dance; AR/VR; Psychology