

# ANA SOUSA

## AI Research Engineer



Call me: (+351) 926 201 260

Email me: [anamariaas.eng@gmail.com](mailto:anamariaas.eng@gmail.com)

Website: [AMfeta99](https://AMfeta99.github.io)

LinkedIn: [in/ana-maria-sousa-bioeng](https://in.linkedin.com/in/ana-maria-sousa-bioeng)

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 (1 year)

- 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,

## Assistant Researcher (Master's Thesis)

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

## Junior Researcher (Erasmus+ Internship)

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