Juan Sebastián Bravo Santacruz

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Electronics Engineering Student

Last semester student of Electronics Engineering with a keen interest in **machine learning**, **signal processing**, **bioengineering**, and **computer vision**. My biggest passion now lies in **neuroengineering**, especially **neuroimaging** and **Signal Processing**. I have experience working with Python modules such as TensorFlow, scikit-learn, and PyTorch, along with knowledge of machine learning algorithms and deep learning.

Education

Pontificia Universidad Javeriana — Bogotá, Colombia
Bachelor of Science in Electronics Engineering — *Jul 2018 – Sept 2023*

GPA : 4.57/5.00 — Nine Academic Excellence Awards.

Relevant Courses : Artificial Intelligence (4.8/5.0), Image Processing and Computer Vision (5.0/5.0), Signal Processing (4.8/5.0), Continuous Time Signals (4.9/5.0), Discrete Time Signals (5.0/5.0).

Experience

Big Data & Analytics Intern — Jan 2023 – Jul 2023
Accenture — *Bogotá, Colombia*

- Assistance in the development of proof of concept (**PoC**) chat bot using **generative AI** and **LLM** on **Azure**. Use of FormRecognizer, Azure Functions, and OpenAI suite.
- Design of scripts for the implementation of **ETLs** in **Databricks**, using technologies such as **SQL** and **PySpark**. Use of **daltalakes** and **data warehouse**.
- Support and monitoring of infrastructure deployed in the **AWS** cloud.
- Development of infrastructure as code IaC using **terraform** on architecture deployed in the **AWS** cloud.

Teacher Assistant — Aug 2020 – Dec 2022
Pontificia Universidad Javeriana — *Bogotá, Colombia*

- Teacher assistant of the subject Continuous Time Signals.
- Teacher assistant of the subject Signals and Systems.

Projects

Thesis: Multimodal system to assist in the diagnosis of Mild Cognitive Impairment from MRI Images Source Code

- Classification of volumetric MRI images of the brain using **deep learning** (Resnet-50) and **machine learning** (Tested the following algorithms: XGBoost, SVM, Logistic Discriminant, Random Forest, Dense Neural Networks).
- Multimodal system (based on a **regression model** and **MLP**) involving MRI images classification and cognitive test results, for giving a probability of having MCI.
- Use of **Bayesian Optimization** algorithm for **hyper-parameters tuning** of machine learning models.
- Design of User interface involving image importing, image visualization (before and after skull stripping) and the diagnosis. App was hosted at huggingface .

Skull Stripping from MRI Images using 3D U-Net Source Code

- **Preprocessing** of volumetric MRI images of the brain (**Filtering**, **normalization**, **resizing**).
- Training of a 3D U-Net network using **Keras** for semantic segmentation of brain in volumetric MRI images.

AF Classification from a single lead of ECG recording using machine learning Source Code

- Preprocessing of ECG signals (**Filtering**, QRST cycle detection, **feature extraction**).
- Training of a **deep neural network** (DNN) for classifying ECG recordings as Atrial Fibrillation or Normal Control patients.

Languages

Spanish	:	Native
English	:	Certified C1, IELTS score: 7.5

Technical Skills

Programming	:	Python, MATLAB, C, SQL
Libraries	:	Pytorch, Tensorflow, scikit-learn, Keras, Pandas, Numpy, OpenCV, SciPy, Matplotlib
Tools	:	Git, Databricks, Jupyter Notebooks, Google Colaboratory
Clouds	:	AWS (Basic), Azure (Basic)

Certifications

- CS50's Introduction to Artificial Intelligence with Python — HarvardX