Federico Ferreyra

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Machine Learning Engineer / Python Developer

Audio Engineering with +4 years of experience and specializing in Machine Learning (+1 year). I've completed multiple projects using **Python**, **Numpy**, **AWS**, **Keras**, **Tensorflow**, **Pandas**, **Scikit-Learn**, **Docker** and the basics in **SQL** among others. I also have +4 years with **Python** applied to Digital Signal Processing (DSP) and Digital Audio. I had a chance to mentor students in applied mathematics, algebra and physics, in addition to my experience in commercial audio consulting.

I'm a lifelong learner and enjoy working on projects where I can apply my skills while learning new technologies. I consider myself a self-taught individual, problem-solving oriented, and enjoy collaborating with a team.

Work Experience

Machine Learning Engineer at Anyone AI

Apr 2022 to date

- Products review classification: Analyze sentiment in product reviews for a movie streaming service. Manipulated data that is not in a traditional format, pre-processed it, and vectorized text data using BoW and TF IDF. Trained a word embedding and used it as a vectorization source for the data. Trained a sentiment analysis model to detect positive and negative opinions for movie reviews.
- Image Classification for E-Commerce: Predict vehicle make and model from unstructured e-commerce images. Trained on a pre-built dataset of 196 classes. Visualized and cleaned the dataset, pre-processed and augmented data, and trained a fine-grained classification model using convolutional neural networks achieving 82% accuracy in the prediction of make and model combined. Deployed in AWS instances using Docker, using an API-based web-service application.
- Home Credit Risk Analysis: Predicted whether a person applying for a home credit will be able to repay their debt or not. Manipulated and visualized data, and performed data pre-processing for a large dataset of +350,000 transactions. Trained many supervised models were achieving +0.72 ROC AUC. Models used were DecisionTree, XGBoost, and LightGBM.
- Salary Prediction Model The goal was to predict salary levels based on historical data for sports players. Collected and analyzed data via an API using Python and Pandas. The original data was unbalanced. Cleaned up data, generated additional fields, stored and created a base dataset. Manipulated and visualized data. Performed feature engineering and standardization. Selected evaluation metrics and baseline models. Trained a linear regression model, achieving an F1 score of 76%.

Main technologies: Python, Numpy, Pandas, Scikit-learn, TensorFlow, Keras, Docker, AWS, Bash, Git.

Math & Physics Teacher

2014 to 2022

- Prepared +50 students for college admission providing personalized mentoring according to their career goals. From mathematics, algebra, or physics to DELF French preparation.

Audio Engineering Consultant 2014 to 2022

- Designed and deployed audio technology in entertainment and food industries providing consultancy on client's commercial premises and their needs.
- Each project was planned following best practices and recommendations to achieve an optimal acoustic result based on the client's requirements and physical characteristics.
- Deployments included implementation, setup and configuration of equipment in client's facilities.

Projects

- **Object detection for in-store inventory management** 2022
  Scalable microservices architecture using Docker to implement Flask, Redis, and fine-tuned yolov5 model trained on AWS Server. Ready to deploy with a login security layer for the front end and an API endpoint. Detects missing object in store shelves and return the image with a Gaussian filter for visualization.

Tech stack: Python, Numpy, Docker, AWS, Git, Bash, PyTorch

- **Adaptive filter for signal prediction with noise** 2019
  Python implementation of an adaptive Kalman filter, aiming at predicting the sound pressure level SPL (dBSPL) at a certain distance from the source and in which the measurement may be subject to high noise levels.

Tech stack: Python, Numpy

- **Impulse Response measurement software** 2018
  MATLAB development to apply convolutional operations using sine sweeps to obtain the Impulse Response of an enclosure and extract acoustic parameters. Obtaining EDT, T20, T30, C50.

Tech stack: MATLAB, REW, Reaper/Audacity

Skills

Tech Skills: Python, Numpy, Pandas, TensorFlow, Keras, Scikit-learn, Docker, AWS, Git, Bash, SQL.
Other Tools: Visual Studio Code, Jupyter & WSL.
Languages: Fluent in English, Spanish native, French native

Education

National University of Tres de Febrero (Buenos Aires) 2009 to 2023
Audio - Sound Engineering

Certification

Anyone AI 2022
Machine Learning Engineer