**-------------- LIFE -----------------**

Lived abroad for a significant part of my childhood, including New York, Brasilia, where I attended elementary school, and France, where I completed middle school. Later, in high school, I landed in Rome, where I completed high school, bchelor and masters. I also participated in an ERASMUS program in Prague in 2019.

Additionally, my parents lived in Oslo, and I spent most of the last 4 years between Norway and Rome. They recently moved to Costa Rica.

Then i decided to relocate to Lausanne for a new journey.

Native speaker in Portuguese and French, with a certified English level of B2/C1.

Adaptability skills gained from frequently entering new environments without knowledge of the language and customs, requiring integration despite these obstacles. The last time was when I arrived in Italy in 2012.

I have 4 siblings who have accompanied me since I was young, traveling around the world, fostering a strong sense of teamwork.

-------------------- WORK EXPERIENCE --------------------

I am working for a consulting firm since almost 2 years, that sent me to this client from day one. It’s a rail maintenance company of more than 500 employees and i am the only data engineer and scientist in the company. So i am building their Data Vault, meaning i migrated their databases into a data warehouse since it has large benefits for data analysis, now using Snowflake. Once it was done, i started producing dashboards that seemed important and also all the dashboards that they asked me to do for all departments (operations, hr, finance .. ) using Tableau. Now i keep producing dashboards while i make this huge project on train tracking for their client that is the swiss national rail company.

The idea is to have a portal in which the client can track the trains working for their construction site to keep track of their position, and percentage of work done. I proposed to use machine learning techniques to enhance this portal so that we can predict the end of the work to save time and also to analyse the huge amouunt of data that we’re working with (it’s a tracker on each of the 50 trains sending their location and speed every minute).

Valutare diversi algoritmi di machine learning, come regressione lineare, regressione con alberi decisionali, reti neurali, ecc.

Considerare l'uso di modelli di serie temporali se i dati hanno una componente temporale significativa.

Resume :

I am Vincenzo Colella, an Artificial Intelligence Engineer and Data Scientist/Engineer currently based in Lausanne, Switzerland. With a Master’s degree in Artificial Intelligence and Robotics from Sapienza University in Rome, I specialize in Computer Vision, Deep Learning, Medical AI and Data, as showcased in my master's thesis in collaboration with the Italian National Institute of Nuclear Physics. Certified in Python, Tableau, Snowflake, and AWS, I'm now working as Data Scientist at Argusa, enhancing decision-making processes for a leading swiss rail maintenance company. My international background and fluency in Italian, French, English, and Portuguese have honed my adaptability and cultural understanding, complementing my academic achievements and contributions to machine learning and robotics projects. Passionate about innovation, I'm poised to drive advancements in artificial intelligence and data.

**------------- EDUCATION -----------------**

Studied Computer Science during my bachelor's and completed 'Artificial Intelligence and Robotics' for my master's degree, a 2 years program entirely taught in English.

Passionate about Machine Learning, Deep Learning, and Data Science.

Fast MRI, using a convolutional neural network to reconstruct undersampled magnetic resonances. Collaboration with NYU and guidance from a CERN engineer, allowing research through the National Institute of Nuclear Physics server.

Fluorescein angiography, employing a GAN to reconstruct the use of fluorescein in angiography.

Implemented an algorithm for detecting manipulations in input images, particularly useful in forensic contexts, thanks to a siamese neural network.

During my bachelor's, created a complete 3D playable online video game, various Android applications with associated SQL databases entirely programmed by me, including Quanta Fila, School Register, and Booksharing.

My thesis was a review classifier for Amazon reviews, allowing classification into sentiment tags of 1, 2, 3, 4, 5 stars.

**PROJECTS:**

-Master's Thesis: In my master's thesis titled 'An Enhanced Architecture for Accelerating Magnetic Resonance Imaging Based on Res-U-Net,' I introduced a modified U-NET neural network to expedite magnetic resonance imaging (MRI) acquisition. Collaborating with the National Institute of Nuclear Physics, I conducted experiments on 7000 human brain resonances, each comprising approximately fifteen slices. The results demonstrated a remarkable similarity of around 93% and 89% in the 4x and 8x acceleration cases, respectively. Key advancements included meticulous data preprocessing and the implementation of two specialized MRI image enhancing techniques: GRAPPA (Generalized autocalibrating partially parallel acquisitions), a Parallel Imaging Technique, which interpolates pixels based on k-space data, and ESPIRIT, facilitating autocalibration by identifying regions scanned by each coil to enhance image quality.

-AttentionToAngio GAN: Examination of the eye named Fluorescein Angiography to identify blood leakage in the eyes, which can lead to complications. Implementation of a GAN,with 2 generators and 4 discriminators, to reconstruct these veins from the naked eye. We had few samples of data so we augmented them, cut them into smaller batches, and trained the model.

- Human-Robot Interaction: Software designed for Pepper, to be placed at strategic points in the university, using PDDL (AI approach) to plan the optimal path for a student wishing to reach a specific location on the map. PDDL uses parameters we calculate to determine the best route for the person to traverse fewer squares on the map. Pepper then provides assistance through gestures and verbal instructions to the user.

-Fighting Fake News: Image Splice Detection via Learned Self-Consistency, a project in which, through a set of neural networks, we present a self-supervised learning method to detect visual manipulations using only unlabeled data. The data includes automatically recorded EXIF metadata; we train a model to determine if an image is self-consistent, meaning if its content could have been produced by a single pipeline.

-Bachelor's Thesis: Text classification program based on sentiment, where I scraped using spyder library more 10,000 reviews from Amazon using a Python program (scraper), and then trained an NLP using a library. At that point, the program could assign a score to any presented review.

-Small computer vision project with feature detection using SIFT and SURF.

* PERSONAL PROJECTS :
* Betting predictions based on statistics, relying on expectations and odds, using historical data.
* Active trading bot based on historical data and interpolation of technical indicators, that I imporved using scikit-learn to fine tune the parameters.

Small image classification projects based on the car brand.

Human-Robot Interaction: Software designed for Pepper, to be placed at strategic points in the university, using PDDL (AI approach) to plan the optimal path for a student wishing to reach a specific location on the map. PDDL uses parameters we calculate to determine the best route for the person to traverse fewer squares on the map. Pepper then provides assistance through gestures and verbal instructions to the user.

Bachelor's Degree:

Bachelor's Thesis: Text classification program based on sentiment, where I retrieved 10,000 reviews from Amazon using a Python program (scraper), and then trained an NLP using a library. At that point, the program could assign a score to any presented review.

Creation and maintenance of a relational database with SQL + website => Quanta Fila.

Creation of various apps with Android Studio connected to a large database - MySQL and Firebase (such as bike-sharing) => Booksharing.

**----------------- HOBBIES AND PASSIONS -----------------**

Competitive level in athletics.

Self-taught pianist.

Passionate about economics, especially investments and finance. I have previously invested in stocks and cryptocurrencies before the current boom, maintaining a strong interest in economics.

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**WEAKNESSES =>**

Short-term memory, but I address it by noting everything in my task list, ultimately resolving any requests.

Quick decision-making without always evaluating details.

Sensitive personally, as I invest a lot in what I do, making me sensitive to criticism delivered too easily.

**STRENGTHS =>**

Adaptability skills acquired through frequent relocations.

Strong communication skills, developed through interactions with four siblings, new friendships, and proficiency in multiple languages.

Effective stress management, honed during stressful situations in my high school years (arriving in the second year).

**- Why are you leaving your job ?**

I am a consultant, changing clients every year, it's not the dream job. The main reason is that i'm not looking for another random job but for my dream job like this one could be, based on my passion for medical and biomedical field. I am not really passioned about trains.

**- Why are you a fit for this role?**

Dual Expertise in Data and AI:

I excel in both areas - I studied mostly AI and machine learning as a student, and worked last year mostly on data engineering and data science. I would say that this is very important since many colleagues are experts in tableau but cannot design a simple classification model.

Biomedical Experience: I also have a biomedical background, since it has always been a passion from me. I made my masters thesis on MRI Acceleration, worked on an Angiography with Fluorescein project and participated in the Oxford Summer School on health track in which we worked on many ML projects on medical field.

International Background: Lived abroad most of my life, fluent in 4 languages, bringing a cross-cultural perspective. In such an international company, i think this is a fundamental point

Passion for Your Company: A genuine fan, closely following your mission and innovations in the industry. This would be my dream job. I saw that the company created the pacemaker and works a lot with mri.

**- Difficult situations or FAILURES :**

- fastmri project, in which my results had few hallucinations, meaning regions that were completely created by the gan without any apparent reason. I succecfully repaired this problem by studying the specific cases and tuning the parameters using ESPIRIT that is a method that increases the accuracy by creating maps of coil calibraiton for better accuracy.

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STAR stands for Situation, Task, Action, and Results.

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