Alessandro Abati

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Education

City, University of London Sep 2023 – Present
MSc Artificial Intelligence
University of Florence 2021
Bachelor of Physics and Astrophysics *Score: 104/110*

Experience

BIP Consulting | *Data Analyst* | Milan Jan 2022 – Aug 2023
Specialized in Data Governance and Data Quality consulting. Gained experience in designing and implementing data modelling as well as analyzing the data life-cycle. Technical competences in coding (Python), mainly used for data exploration, data preparation and data cleaning.

Major achievements

1. *Software House Data Enhancement*
   Led data structures analysis and orchestrated data cleaning, increasing **data quality** by **26%**. Designed data quality framework, collaborating with Data Office Head for **data strategy**.
2. Italian Bank Data Migration
   Optimized data model with Python; implemented **data cleaning pipeline** for successful legacy migration.
3. Multinational Fashion Company Audit
   Developed internal **audit** process for Data Governance improvements. Analyzed **data life-cycle** and provided critical insights for enhancing data quality.

Dissertation Research | *Physics Data Analyst* | CERN, Geneve
Studied and implemented a machine learning DNN model to classify physics events associated with Higgs boson production, in CMS experiment at LHC, and distinguish them from the main background events. The main aim of the study was to optimize signal region selection though maximizing the metric efficiency×purity. Moreover, a Bayesian approach to hyper-parameters optimization was introduced for the first time in the team.

Personal Projects

Bayesian Optimizer with Gaussian Process Regression | *Python, NumPy, scipy, Matplotlib, OOP, Git/GitHub, VS Code*
- Created a robust and well-structured code-base for Bayesian Optimization using Gaussian Process Regression modeling
- Expertly employed concepts such as mean and covariance functions, negative log-likelihood loss, and acquisition functions to guide the optimization process efficiently

BingAI Voice Assistant with FaceID Login | *Python, speech-recognition, Amazon Polly (AWS), face-recognition, EdgeGPT API*
- Leveraged expertise in speech and facial recognition, text-to-speech synthesis, and AI chatbot integration to develop an all-encompassing voice assistant solution. Also, designed a secure FaceID login system using facial recognition for personalized user authentication
- Developed a modular code-base that supports feature expansion and customization, fostering community contributions to drive collaborative development and enhancements

Binary Classification of Machine Failure | *Keras, TensorFlow, Keras Tuner, Pandas, scikit-learn, EDA, ROC and AUC score*
- Developed a binary classification project using Keras and TensorFlow, employing advanced deep learning techniques for improved accuracy. Performed exploratory data analysis (EDA) for preprocessing and feature engineering, enhancing model performance
- Optimized model configurations using Keras Tuner, addressed class imbalance with weighted training, and created an evaluation script for ROC curves and AUC scores. Shared project on GitHub with informative README for reproducibility and collaboration

2D Diffusion Simulation via Random Walk | *Python, NumPy, Matplotlib, Seaborn, Random (Python standard library)*
- Developed a Python simulation for 2D diffusion using random walk, analyzing results compared to the analytical solution, and showcased strong analytical skills by investigating discrepancies and error convergence with increasing particle count

Soft Skill

Problem Solving, Team working, Time management, Communication, Organization

Languages

Italian: Native
English: Fluent (IELTS Band 7)