

Alessandro Abati

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AI Developer and **Data Scientist** specialized in **Gen AI**, **Machine Learning** and **Reinforcement Learning**.

WORK EXPERIENCE

BIP xTech | *Data Analyst* | Milan, Italy

Jan 2022 – Aug 2023

Led data quality enhancement, strategic data framework development, and legacy system migration initiatives.

- Analysed data structures and orchestrated automatized data cleaning pipeline, increasing administrative data quality by 26% in given time frame.
- Designed a long-lasting data strategy framework, collaborating with Data Office Head and stakeholders.
- Led team to analyse database through SQL queries, optimize data model and implement data cleaning pipeline for successful legacy migration.
- Developed internal audit process for Data Governance improvements. Analyzed data life-cycle and provided critical insights for enhancing data quality.

Research Program | *Physics Data Analyst* | CERN, Geneva, Switzerland

Oct 2019

Involved in founded program to develop machine learning model at world leading center for particle physics research.

- Implemented deep neural network model to classify physics events associated with Higgs boson production in CMS.
- Introduced Bayesian approach to hyperparameters optimization for first time in research team.

PROJECTS PORTFOLIO

BingAI Voice Assistant with FaceID Login | *Python, speech-recognition, AWS, face-recognition, API*

- Leveraged speech recognition, text-to-speech synthesis, and AI chatbot integration to develop voice assistant solution.
- Designed secure FaceID login system using facial recognition for personalized user authentication.
- Developed modular code-base that supports feature expansion and customization, fostering community contributions to drive collaborative development and enhancements.

Bayesian Optimizer with Gaussian Process Regression | *Python, NumPy, scipy, Matplotlib, OOP, Git/GitHub*

- Created well-structured code-base for Bayesian Optimization using Gaussian Process Regression modeling
- Expertly employed concepts such as mean and covariance functions and negative log-likelihood loss to guide optimization process efficiently

ACADEMIC RESEARCH

Abstractive Text Summarization with LLM Model | *PyTorch, HuggingFace, Python, ETL, NLP*

- Created robust ETL data pipeline for data preprocessing (tokenization, statistics extraction) and ingestion.
- Developed BERT-based model (LLM) to produce relevant summaries from news and articles. Adapted BERT transformer model to fit task through employment of expressive embeddings and adaptive loss function.
- Coded GPU bounded ROUGE score function to validate and test model.

Vincent van Gogh forgeries detection | *PyTorch, Fine-tuning, attention mechanism, contrastive learning*

- Fine-tuned several CNN architectures on curated art datasets, achieving high F1-scores in classification tasks.
- Incorporated self-attention and multi-head attention mechanisms, enhancing model performance and interpretability through attention weight visualization.
- Implemented supervised contrastive learning to address class imbalance, improving the model's ability to differentiate between authentic and forged artworks.
- Achieved promising results with multi-head attention and contrastive learning models, demonstrating robust classification and visualization capabilities.

EDUCATION

MSc Artificial Intelligence | City, University of London

First class

Bachelor of Physics and Astrophysics | University of Florence

Upper second class