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Francesco Sannicola

Machine Learning | Software Engineering

Working experience

Machine Learning Engineer - Senior Consultant *Links Management & Technology* Bari 01/2025– current

- End-to-end IoT energy forecasting platform featuring automated ML model selection, **genetic algorithm** optimization, and interactive dashboards for predicting, monitoring and optimizing healthcare facility power consumption and CO_2 emissions.

Machine Learning Engineer - Consultant *Links Management & Technology* Bari 03/2023–12/2024

`Python` `Java` `Docker` `Gitlab CI/CD` `LangChain` `Milvus` `Amazon Web Services: EC2, S3, Lambda, Transcribe, Polly, SNS, EventBridge` `Pandas` `FastAPI` `Spring Boot` `Git` `Keras` `Redis` `PostgreSQL` `Keycloak` `Mosquitto` `KNIME` `Nginx`

- Enhanced Data Extraction with Web Crawling and GraphRAG: **ReAct Agent** with browsing and crawling capabilities for web data extraction. Integration with GraphRAG to seamlessly combine on-premise and online data, allowing users to ask questions via the chatbot and receive answers sourced from both local and internet data.
- Extracting ESG Insights from investment fund reports: system based on RAG and GPT-4o, designed to extract KPIs from unstructured ESG standards documents and retrieve ESG content from active fund reports using **In-context Learning**.
- NLP-based content proposition during web browsing: **RAG web application** designed to enhance user experience by providing supplementary content such as up-to-date news, encyclopedic information, and FAQs relevant to the page content. The application implements asynchronous **speech-to-text** and **text-to-speech** capabilities using Amazon Transcribe and Amazon Polly, respectively, allowing users to interact with the application through voice or text commands.
- Predictive maintenance and remaining useful life estimation for Electric Vehicle (EV) charging stations: from an initial anomaly detection model to the development of a comprehensive **degradation model** to facilitate the identification of crucial variables that significantly influence wear and tear on EV charging stations.
- Loan Default Prediction: implementation of a classification model for **past due identification** in order to proactively alert the bank several months in advance about the likelihood of a particular loan experiencing payment delays.
- **Lecturer** in software development, databases, and Python at *Associazione Formazione*; and in anomaly detection and time series analysis at *Links Academy – AI & ML*, with practical lab materials available on *GitHub*.

Artificial Intelligence and Data - Analyst *Deloitte* Bari 10/2022–02/2023

`Qlik Sense` `SQL` `MS Excel` `Qlik NPrinting`

- Developed an ETL workflow with automated **data visualization** of employees' KPIs derived from survey data, aimed at enhancing their engagement, retention, and satisfaction.

AI engineer and System Administrator - Intern *Intesa Sanpaolo* Torino 12/2021–05/2022

`Python` `Tensorflow` `Google Cloud Platform` `Flask` `Bokeh` `Bash`

- Developed a real-time **time series forecasting** and anomaly detection solution, evolving from a statistical baseline to recurrent networks and autoencoders, to enable system engineers to promptly address potential infrastructure failures.

Education

Master's degree in Computer Science - AI *University of Turin* **GPA**: 3.71/4 01/2020–04/2022

- Major: Neural networks and Deep Learning, Machine Learning, Natural Language Technologies, Advanced Techniques and Architectures for Software Development, Conceptual Modeling for Semantic Web.
- 200h collabs: web pages development for freshman orientation, notes making and study support for student with disability.
- Thesis: development and dashboarding of real-time time series **anomaly detection** systems on univariate time series using statistics, machine learning and deep learning (link to thesis).

Bachelor's degree in Computer Science *University of Bari* **GPA**: 4/4 10/2016–12/2019

- Major: Computer Architecture, Operating Systems, Algorithms and Data structures, Databases, Software Engineering.
- Thesis: full-stack development of an indoor positioning system and integration with a content-based **recommender system**.

Certifications

04/2024 **AWS Certified Machine Learning**
03/2024 AWS Machine Learning Cert Preparation
05/2022 GCP Big Data and ML Fundamentals
04/2022 GCP Fundamentals: Core Infrastructure

Languages

Italian: Native
English: Professional Working Proficiency