ANTONELLO AITA

Data Scientist

Theoretical Physicist

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WHO AM I?

I'm a Data Scientist with a strong mathematical background coupled with the ability to communicate findings to both business and IT leaders. I define myself as an analytical curious that loves to decipher complex problems making use of the top technology tools in order to get business and scientific knowledge and then consolidating results in valuable solutions. I'm really passionate in cutting edge technology as **quantum computing** and **AI** on which I'm keep learning and experiencing.

EXPERIENCE

NOW
11/2017 **IBM Italy**
Consulting

03/2022 - NOW **Managing Consultant**
Analytics and Data Science

04/2020 - 03/2022 **Senior Consultant**
Analytics and Data Science

11/2017 - 03/2020 **Junior Consultant**
Cloud Application and Analytics

RELEVANT PROJECTS

02/24 – NOW **Explorign path on Generative AI**
Main Italian Telco company
The project aims to develop a state-of-the-art RAG framework, incorporating leading-edge technology and best practices to augment the capabilities of current tools. Through the utilization of innovative methodologies, the framework aims to maximize efficiency and efficacy, facilitating seamless integration and superior results. In my role as Project Manager, I oversee activities and engage with the client to ensure project success.
`Python / Google Cloud Platform / Project Management`

01/24 – 02/24 **Basics on Quantum Computing**
Main Italian Shipment and mail delivery company
This project launches a capability-building initiative in a shipping company to impart foundational knowledge on quantum computing. The aim is to empower the organization to effectively leverage this cutting-edge technology. I contributed as a quantum computing trainer and technology expert.
`Python / Qiskit`

10/23 – 12/23 **Generative AI for Bibliographic search**
Main Italian Ministry
The aim of this Proof of Concept is to demonstrate how Generative AI can assist users in navigating and interpreting bibliographic content in natural language. I play a pivotal role in this project as the technical lead, responsible for gathering business requirements, designing the technical solution, from the application design to prompt engineering.
`Generative AI / Python / Project Management`

07/23 – Now **IoT edge bridge layer and a predictive maintenance ML model**
Leading national Airport
This project aims to provide to the client an assesment on its assets and provide the right IoT devices to enable data transmission. Then implement an edge brige layer to gather and collect data from assets. At the same time start do develop ML for predictive maintenance on a subset of selected assets. In this project I'm contributing in the asset assement, data layer designing and ML design and implementation coordinating a team of junior consultants.
`IoT Platform / Predictive Maintenance ML algorithm / Python`

12/22 – 06/23 **Data Lake and Analytics on blackbox car data**
Leading national Assurance Company
This PoC consists of the implementation of a Data Lake that collects data from black boxes installed on several million vehicles currently on the road and performs analytics to detect device anomalies. I'm contributing as technical lead to design data structure and data processes.
`Big Data / Pyspark / IBM Cloud`

09/22 – 11/22 **News and twitts Enrichments with NLP methods**

National Central Bank

This PoC consists on the implementation of NLP models, ML and Rule based, to extract relevant information from news corpus and twits in order to feed statistical indicator to monitor the activity of bank in providing their services to the users. I contributed as technical lead by leading the team in gathering functional requirements from the client and solution design.

`Python / Pyspark / Project Management`

05/22 – NOW **Journey on quantum computing**

Leading national Bank

This project consists of the exploration and implementation of several financial use cases declined in the quantum paradigm. In this project are involved one of the most important Italian universities that follows the scientific part, the most important Italian bank that offers its knowledge in the financial sector and one of the world's leading companies in the field of quantum computing contributing technology and project management. In this project I contributed as technical lead, business translator and qiskit developer.

`Python / Qiskit / Technical Lead`

07/21 – 02/22 **Automatic Ticket Solver**

Leading national Telco company

It is a project that aims to build a full cloud tool able to understand and manage tickets coming from the Customer Care, extracting relevant information using Watson NLP services and then addressing ticket to resolution using RPA technology. I lead the analytics project team working on NLP model training and designing resolution pipelines, monitoring the solution performances and facing the client to communicate business results.

`PMO / Python / Pandas / Watson Cloud Services /SQL`

02/21 – 06/21 **Basic Course on Quantum Computing - Qiskit Package**

Leading national Bank and Academia

The course covered the basics theory of quantum computing and the most famous algorithms implemented using the qiskit package, and then focused on a set of deep dive on different arguments (physics, finance, machine learning) where I contributed as instructor.

`Quantum Computing / Python / Teaching / Qiskit`

02/20 – 10/21 **Email Classifier Tool: POC, Development, Deploy and Maintenance**

Leading national travel and transportation company

It is a series of projects started with a POC on Watson AI capabilities and then moved to design and drive in production a mail router tool driven by mail classification and metadata extraction performed by Watson Services. In that project I contributed in solution design, functional analysis and as Project Manager I lead the development team for the delivery of the project, the deployment in the productive environment and the maintenance, interacting with business, IT internal and external providers.

`Project Management / Watson Cloud Services / OpenShift infrastructure / Kibana`

04/20 – 11/21 **Electric Power Line Congestion Detection**

H2020 European Community

It is part of a H2020 European Commission funded project that aims to develop a new Energy Management System to improve congestion management on High Voltage grid and to maximize RES production by coordinated use of innovative Dynamic Thermal Rating, short-term forecasts and Demand Side Response resources. On that project I contributed in data understanding, model development and python framework building.

`Python / CLPLEX`

10/19 – 01/20 **Renewable Energy Forecasting for Distributed Generation**

leading national energy infrastructure company

Renewable energy forecasting for distributed generation developing of an application aimed at forecast the renewable energy distributed generation using machine learning models. For this project I worked on data exploration and model developing, in direct collaboration with a team of specialists from the IBM Research Lab of Ireland.

`Python / Cloud Platform / Scikitlearn / XGBoost / Pandas`

ACTIVITIES

Quantum Computing

Thanks to the competencies developed handling with the IBM quantum tools I had the opportunity join the IBM Q network and taking part in several activities:

12/2019 **Teacher of IBM skills academy pilot course on Quantum Computing**

J.T. Watson Research Center - York Town Eights (NY) U.S.A

03/2020 **Speaker of Qiskit workshop at Singapore University**

On line conference

PUBLICATIONS

Article - 2023
https://ieeexplore.ieee.org/abstract/document/10313821
Towards an end-to-end approach for quantum principal component analysis

Article - 2023
https://www.mdpi.com/1099-4300/25/4/593
A More General Quantum Credit Risk Analysis Framework

Article - 2022
https://iopscience.iop.org/article/10.1088/1742-6596/2416/1/012002
Towards practical Quantum Credit Risk Analysis

Article - 2021
https://www.mdpi.com/2312-7481/7/8/117
Simulating Static and Dynamic Properties of Magnetic Molecules with Prototype Quantum Computers

Article - 2021
arxiv.org/pdf/2107.02007.pdf
A Serverless Cloud Integration For Quantum Computing

Article - 2021
https://ieeexplore.ieee.org/document/9627062
An innovative short-term congestion management algorithm for the Italian subtransmission grid: the Zonal-EMS Demo of the OSMOSE Project

Published Invention - 2019
https://priorart.ip.com/IPCOM/000258553
Method and system to create and deploy Cloud containerized quantum-based web applications using API-exposed quantum computers as back-end.
Publication No. **IPCOM000258553D**

EDUCATION

2017 - 2019 **Consulting by Degree**
IBM
Elite development graduate program for consultants

2014 - 2017 **M.Sc. Physics**
Alma Mater Studiorum, University of Bologna
Thesis:
"Extended Hubbard model
with soft-shoulder interaction" (EN)
Final Grade: 110/110

2011 - 2014 **B.Sc. Physics**
Alma Mater Studiorum, University of Bologna
Thesis:
"Dirac's fermions on graphene" (IT)
Final Grade: 105/110

ACADEMIC GRANTS

2016-2017 **Scholarship for thesis abroad**
University of Bologna
Institut de Science et d'Ingénierie Supramoléculaires
- University of Strasbourg

CERTIFICATIONS

04/23 **Professional Machine Learning Engineer**
Google Cloud Certified
Certification ID: FjfDOO

03/23 **Quantum Ambassador**
IBM
`https://www.credly.com/badges/334d24e7-0e43-430e-a3f0-efcb4584c0ac/public_url`

04/22 **AWS certified Machine Learning-Specialty**
AWS
License: GK8K2X9J4EXE

03/21 **SAS Certified Specialist: Base Programming Using SAS 9.4**
SAS Global Certification Program
Certificate Verification Number: HJVXKTT22EVQQ03P

01/21 **Introduction to Portfolio Construction and Analysis with Python - Coursera**
EDHEC Business School
License: M5VFVQDKRBXM

09/20 **Qiskit Advocate**
IBM
`https://qiskit.org/advocates`

11/18 **Machine Learning - Coursera**
Stanford University
Validation Number: Q4DE4CYBPJR1QV9B

LANGUAGES

Italiano - native
English - very good

INFORMATION

Driving license: category B

HOBBIES

Playing keyboards
Playing Chess
Volunteer Civil Protection