



ALESSIO VACCARO

DATA SCIENTIST
www.alessiovacarro.com

Contacts

+39 347 83 22 811
iam@alessiovacarro.com

Born

Cefalù, Palermo, Italy

Location

Bari, Italy

Birthdate

22-12-1989

SKILLS

- Python
- ForTran
- R
- SAS
- Java
- SQL
- MatLab
- Octave
- HTML / CSS / JS
- Git / Agile
- Azure DataBricks
- Apache Spark
- Microsoft PowerBI
- Flask
- Numpy / Scipy / Pandas
- Keras
- Scikit-Learn
- Matplotlib / Seaborn
- AWS
- TensorFlow

Satellite / Drone Remote Sensing

Environmental Engineering

Energetics

Civil Engineering

Machine Learning

Networking

Clustering

Classification

Neural Networks

Time Series

Predictive Maintenance

Anomaly Detection

IoT

Cloud Computing

Data Mining

Data Cleaning & Visualization

Image Processing

Microcontrollers

Business Intelligence

Fast Problem Solving

Project Management

Creative Thinking

Team Working

The Civil Age After my Bachelor's Degree in Civil Engineering and the dive in the world of astrophotography, an extremely technical field of photography, I enrolled in the Master's course in **Civil and Environmental Engineering** in which I deepened my knowledge of **digital imaging, photographic sensors technologies** and **image processing**.

The ImAge The circle was closed with the discovery of the extra course of **Satellitary Remote Sensing** which led me to discover the worlds of **Python, of machine learning** and **computer vision** for multispectral **image classification** and **segmentation** and the world of **microcontrollers** like Arduino and RaspberriPi.

The Data Age After the discussion of the Master's thesis focused on the **calibration** and automation of a **hyper-spectral sensor** for drones (UAVs) just purchased by the University of Palermo, I decided to follow my passions and move to Rome to enroll in a postgraduate Master course provided by ELIS and CISCO about **Data Science, Internet of Things** and **Big Data**.

At the end of the Master course they offered me to start an **industrial PhD** with the "Università Campus Bio-Medico of Rome" in the **Computer Systems & Bioinformatics** research group: a program in which I would do research on topics faced during work.

I accepted and worked in the ELIS Innovation Hub on cutting edge **Data Science, IoT** and **Big Data** projects. Here I also had the opportunity to be a **Python, Machine Learning** and Big Data courses **lecturer** in the ELIS Digital University, the only Polytechnic of Milan' detachment.

Moved by the desire to get closer to my girlfriend and focus 100% on Data Science activities, I decided to move to Sital, a medium-sized Italian company leader in the **IoT, Railways** and **Space** sectors.

Currently, I actively work as a **Data Scientist** in the Sital' Data Science & Analytics Office, **manage** an astrophotographic image processing 1.200% ROI blog and **write articles** on platforms like Towards Data Science (Medium).

Of course, I'm still **studying**...

EXPERIENCE (1/2)

Data Scientist

Sital, Data Science & Analytics - 2019/12 - Today

Here in Sital I am in the office of Data Science & Analytics, horizontal on all the activities of the company: Space, Industrial & IoT. By mixing together Data Analyst, Data Scientist and Data Engineer profiles, I am currently working on the **design, development** and **management** of the entire quasi real-time Hybrid Cloud reporting pipeline: from **collection layers** to **presentation layers**.

Middle data transformation layers includes, when needed, machine learning models for tasks such as **clustering, fraud detection** or **business data forecast**.

Data Scientist, IT Consultant

ELIS, Innovation Hub - 2018/04 - 2019/11

Consultancy in the field of **Machine Learning** and **Big Data** for large companies like A2A, Generali Assicurazioni, ENEL Global Thermal Generation, ENEL Green Power and Terna. Here in the ELIS Innovation Hub my main activities rotated around **Data Modeling, Team Leading, Mentoring** and **Teaching**. Some projects:

- Development and deploy of an **anomaly detection model** for the discovery of cyber attacks to power plants. The particularity of this model is that it analyzed in realtime both IT network traffic data and OT signals like plant temperatures and pressures. The output of this tool was a **KPI** that condensed **over 1800 dimensions** indicating the "anomaly status" of the plant.
- Development of a scalable tool for the **forecast** of chilean power plants photovoltaic modules' dirtiness using available **field sensors** with the final aim of **optimizing cleaning sessions**.
- Development of a passive multi-agent **fault detection model** to help recognize incipient failures and malfunctions of General Electric turbine combustors in power plants using probes data.

For these projects we used both **traditional** and **machine/deep learning** models such as: SARIMAX, SOMs, Extreme Gradient Boosting or LSTM Neural Networks.

Some other projects: **web scraping** with Python for database building (Generali Assicurazioni), prototyping of an **IoT energy harvesting solution** for data collection and inspection of hard-to-reach areas in which resides Enel Green Power' pipes and open channels.

EXPERIENCE (2/2)



Founder, Developer & Astrophotographer

Blue Journey - 2014 - Today - www.bluejourneyastro.com

I founded Blue Journey: an efficient 1.200% ROI blog that focuses on **advanced astrophotographic image processing techniques** (i.e. images calibration, thermal noise and gradients removal, outlier detection).

My hobby on astrophotography allowed me to publish in international magazines such as **BBC Sky at Night, Coelum, Astronomy Now, Astronomy Magazine and Astronomy Picture of the Day**.

EDUCATION



PhD in Science and Engineering for Humans and the Environment

Università Campus Bio-Medico di Roma - November 2018 - November 2019

I just started my industrial PhD in the department of "**Computer Science & Bioinformatics**". I mainly worked on **multivariate time series modeling for predictive maintenance and anomaly detection**. We also explored the possibility to classify MTS by using image embeddings.

I decided to leave this path because of the poor engaging and the difficulty in effectively following fast consulting projects and rigorous, and naturally slower, world of research.



Master MIDAS : Managing IoT Data Analytics & Security

ELIS Digital University, Rome - November 2017 - July 2018

"Learning by doing" training in with collaboration with CISCO on topics such as **Internet of Things & Networking, Big Data & Cloud Computing** (map reduce paradigm, Spark, Cassandra, Hadoop, Amazon Web Services) and **Machine/Deep Learning**: regressions, clustering (SOM, K-Means), classification (Decision Trees, Random Forests, SVM, Neural Networks, Gradient Boosting), feature selection, dimensionality reduction and data management through technologies and languages like **Python, SAS Enterprise Miner and R**.



Master's Degree in Civil and Environmental Engineering

Università degli Studi di Palermo - October 2014 - July 2017

During my Master's Degree I studied subjects related to environment, hydraulics and solid mechanics. So I decided to expand the planned program by taking the extra classes of Energetics and **Remote Sensing** by Prof. G. Ciraolo.

During this last course I had my first contact with the world of **machine learning applied to images** using software such as **ERDAS Imagine and ArcGis**.

During this period in my free time I started experimenting and playing with **Python**, web development (HTML, CSS, JS, PHP) and microcontrollers such as **Arduino and RaspberryPi**.

CERTIFICATIONS & OTHER



SAS Certified Predictive Modeler with SAS Enterprise Miner 14

SAS - 28 March 2018



Machine Learning

Stanford University (Coursera) - 8MUMU6RN7WMT - December 2018



Python for Data Science

IBM (Coursera) - SSKDQAXC9Z4W - January 2019



SAS Programming 1: Essentials

SAS - SP726285BAE4 - January 2019



PRINCE2 for Project Management

AXELOS - GR656061748AV - December 2018



Associate of: "IAML: Italian Association for Machine Learning", "ORSA: Organization of Research and Astronomy Studies", "FabLab Palermo"

Thank you for your time

Autorizzo il trattamento dei miei dati personali presenti nel curriculum vitae ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali" e del GDPR (Regolamento UE 2016/679).

Alessio Vaccaro