



## Tiago Fontes

**Date of birth:** 19/04/1998 | **Nationality:** Portuguese | **Phone number:**

(+351) 913784736 (Mobile) | **Email address:** [tiagorafaelfontes39@gmail.com](mailto:tiagorafaelfontes39@gmail.com) |

**LinkedIn:** <https://www.linkedin.com/in/tiago-rf-fontes/> |

**Address:** Travessa Vasco da Gama. n° 41 - Calendário, 4760-684, Vila Nova Famalicão, Portugal (Home)

### ● ABOUT ME

Hello. I'm Tiago and I'm working as a Data Scientist for the last 3 years. Since my university times, I always knew Data and AI were my passions: enrolled in such interesting projects, met incredible people along the way and always believed in the potential to solve real-world problems using Data and all the technical skills I was developing. Nowadays, I am sure that we should use Data and AI to improve our lives, enhance worldwide challenges and enhance the quality of living of everyone. Let's use science to solve problems society's problems.

### ● EDUCATION AND TRAINING

10/09/2016 – 08/03/2022

**INTEGRATED MASTERS IN INFORMATICS ENGINEERING** University of Minho

Integrated Master in Informatics Engineering is a challenging and inspiring degree. Throughout 5 years, I had the opportunity and learn about so many topics and fields that I am deeply convinced it was the right choice. Some of the skills and domains covered:

- Improve problem-solving mindset and how to enable solutions, building business opportunities
- Developed architectural and design-thinking reasoning
- Learn several programming language paradigms
- Improved theoretical and practical knowledge in Science and knowledge of the fundamental principles of Programming, Computing and Communication Technologies.
- Ability to undertake independent learning and continuing professional development
- Awareness and understanding of professional ethics

**Website** <https://www.uminho.pt/PT> |

**Field of study** Software and applications development and analysis , Information and Communication Technologies (ICTs) not further defined |

**Level in EQF** EQF level 7 | **Type of credits** ECTS | **Number of credits** 300 |

**Thesis** Bike sharing docking stations identification using clustering methods in Lisbon city

10/01/2024 – 12/01/2024 Vila Nova Famalicão, Portugal

**EFFECTIVE COMMUNICATION** WeChange

- Leverage communication skills, especially within the organizational environment
- Understand different types of communication
- How to present and interact with a big audience
- Developed skills how to deal with varying styles of communication

**Field of study** Communication

- Skill in importing data from various sources and performing complex data transformations using Power Query
- Experience in creating and managing intricate data models, establishing relationships, and utilizing hierarchies
- Ability to design and develop interactive, visually compelling reports and dashboards
- Automating repetitive tasks and optimizing data refresh processes using Power BI's automation features
- Learn how to implement data governance practices and security features

**Website** <https://eisnt.com/modulares-empregados/> | **Field of study** Information and Communication Technologies

## ● **WORK EXPERIENCE**

---

01/12/1998 – CURRENT Vila Nova Famalicão, Portugal

### **DATA SCIENTIST** CONTINENTAL

---

- Design and implement data pipelines to collect data from real-world
- Apply AI and Machine Learning algorithms to enable wear prediction models, as well as computer vision tools to enhance tyre operations and fleet services
- Implement cutting-edge AI for best tyre recommendation based on vehicle application, historical data and alerts/anomaly forecast
- Deploy scalable and robust Machine Learning models to interact with micro-services architecture
- Assure availability and maintenance of deployed solutions, answer a portal/digital solution (desktop, mobile, etc) with thousands of users
- Part of ticket resolving team (based on requests open by end customers)
- Create interfaces for ETL process and sensors
- Conceptualize and implement cloud-based solutions for high volumes of data (Big Data)
- Working in international and diverse team

04/01/2021 – 21/11/2022 Matosinhos, Portugal

### **DATA SCIENTIST** CEIIA - CENTRE OF ENGINEERING AND PRODUCT DEVELOPMENT

---

- System Architect in a consortium for a space project called PhiSat 2, with several international entities, with the European Space Agency (ESA) as the end customer
- Developing a framework for onboard satellite operations focused on designing vessel and classification tools based on high-resolution satellite imagery (5m per pixel)
- Integrating and developing interfaces and communication protocol for satellite controller and micro-services
- Created innovative computer vision algorithms to detect vessels with 15m length (3pixels), in an image swath of 40 km
- Optimize and fine-tune Deep Learning algorithms based on real-world scenarios
- Developed slicing and tailing algorithms from scratch for satellite onboard operations (due to limited computational power)
- Integrate and deployed the developed algorithms, using dedicated framework
- Enhancing operations using multi-spectral optical cameras

01/01/2021 – 31/12/2021 Matosinhos, Portugal

### **FULL TIME INTERNSHIP** CEIIA - CENTRE OF ENGINEERING AND PRODUCT DEVELOPMENT

---

- Contact person with external entities in a consortium of mobility projects in Lisbon, such as Instituto Superior Técnico (IST), Nova University of Lisbon, Massachusetts Institute of Technology(MIT), as well as Portuguese telecommunication operator
- Design end-to-end data-driven approach, using GSM data to understand mobility hotspots
- Research best Machine Learning and Clustering algorithms to better deal with geospatial data, with special dependency of time (day vs night density points)
- Conceptualized and implemented a cluster-based framework to understand high-density populated places, and how they were correlated with housing areas, Points of Interest (POI), offices and working places, etc

- Analysed and optimized the public bike-sharing system operating in Lisbon city centre, identifying new docking station locations, as well as the bicycle lanes expansion program
- Studied and designed an anonymization algorithm to be GDPR compliant and follow all the guidelines of data protection

10/09/2020 – 10/02/2021 Braga

## **CURRICULAR INTERNSHIP DATA SCIENTIST BOSCH**

---

Bosch was developing a solution for Rent-a-car companies to protect their vehicles while rented to end customers. Detecting and fine application is the foggy and challenging use case for these companies since they have no proof of bad behaviours from the end users. Smoking, dirtiness and damage to the vehicle cabin cause thousands of losses for these companies. Thus, Bosch was willing to provide a solution, based on sensors and mobile computational units to support this business model. During this curricular internship, I was able to:

- Be part of a multidisciplinary team, working alongside Data Scientists, Backend Developers and Frontend develops
- Establish interfaces and communication protocols with the backend team
- Architect data warehouse solutions to accommodate different data sources
- Design and conceptualize Machine/Deep Learning solutions for classification, regression and video/image annotation
- Research supervised and unsupervised models, coming up with ensemble techniques to better predict abnormal situations inside the vehicles
- Implement and fine-tune AI models
- Deploy and evaluate the production stage, creating metrics and reporting systems

## ● **MANAGEMENT AND LEADERSHIP SKILLS**

---

### **Scrum Master Data Science Team**

---

Working in the Data Science field requires both technical and non-technical skills, the so-called soft skills. To better organize and manage workload and steer resources, agile methodology has several advantages: adaptability and flexibility. As Scrum Master, it's my responsibility:

- Coordinate and steer data scientist to leverage their skills and deliverables
- Manage Scrum board, where all the ToDo, In Progress and Done tasks are mapped
- Coordinate and moderate team meetings, prepare sprints (work cycles) and demos
- Manage resources and workload, in an international and diverse team environment
- Work as data science team facilitator, to enable and enhance outcome and quality standards
- 

## ● **PUBLICATIONS**

---

2022

### **"A Cluster-Based Approach Using Smartphone Data for Bike-Sharing Docking Stations Identification: Lisbon Case Study"**

---

Urban mobility is a massive issue in the current century, being widely promoted by the need to adopt sustainable solutions regarding transportation within large urban centres. The evolution of technologies has democratised smart cities to better plan and manage their mobility solutions, without compromising the social, economic, and environmental impacts. In pursuing carbon neutrality and climate agreement goals, soft mobility is one of the most popular emerging methods to provide greener alternatives regarding mobility. Among these transportation modes is the bicycle, which has been widely used in several public systems across the world, one of them being in Lisbon. This article provides a decision support system for bike-sharing docking stations for three council parishes of the city, namely, *Parque das Nações*, *Marvila*, and *Beato*. Taking advantage of clustering methods and GSM data from a telecommunication operator, this study highlights a novel approach to identifying soft mobility hotspots, in specific bike-sharing docking stations, for suited mobility management systems in Lisbon's city centre.

Smart Cities 2022, 5, 251-275. <https://doi.org/10.3390/smartcities5010016>

2021

### **Bike-Sharing Docking Stations Identification Using Clustering Methods in Lisbon City**

---

Urban clean mobility has enormous impacts on environmental, economic and social levels, promoting important eco-friendly means of sustainable transportation. Soft mobility (specially bike-sharing services) plays a crucial role in these initiatives since it provides an alternative for hydrocarbon fuel vehicles inside the cities. However, choosing the best location to install soft mobility docks can be a difficult task since many variables should be considered (e.g. proximity to bike paths, points of interest, transportation access hubs, schools, etc.). On the other hand, mobile data from personal cellphones can provide critical information regarding demographic rate, traffic trajectories, origin/destination points, etc., which can aid in the installation of soft mobility platforms. This paper presents a decision support system to study both existent and new bike-sharing docking stations, using mobile data and clustering techniques for three Lisbon council parishes: Beato, Marvila and Parque das Nações.

DCAI

## ● LANGUAGE SKILLS

---

Mother tongue(s): **PORTUGUESE**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>ENGLISH</b>	B2	B2	B2	B2	B2
<b>FRENCH</b>	A2	A2	A2	A2	A2

*Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user*

## ● CONFERENCES AND SEMINARS

---

06/10/2021 – 08/10/2021 Salamanca

### **Distributed Computing and Artificial Intelligence DCAI: 18th edition**

---

- Attended the 18th International Conference on Distributed Computing and Artificial Intelligence 2021, held in Salamanca, Spain
- Delivered an oral presentation of the paper "Bike-sharing docking stations identification using clustering methods in Lisbon city"

23/09/2023 – 25/09/2023 Porto

### **Data Makers Fest**

---

For the first edition of Data Makers Fest, Continental has a booth to share a bit of our daily work and how we thrive in the future of mobility. During the 3 days of the event, I had the opportunity to:

- Meet an experienced Data Scientist, being able to exchange a lot regarding machine learning, AI and Data analytics.
- Engaged in informal networking conversations, including being a Data Scientist representative for Continental and joining discussion panels.
- Brainstorm on how to develop new strategies and tools for tackling complex data challenges.
- Broadened professional network, creating opportunities for collaboration and career advancement.
- Felt inspired and better equipped to implement innovative data solutions in current and future projects

26/04/2022 – 28/04/2022 Guimarães, Portugal

### **Speaker at ENGeniUM 2022: Python Fundamentals Workshop**

---

As a former student of the University of Minho, the ENGeniUM 2022 organization team reached out to be the speaker for one of their workshops regarding my working experience: Data Science & Python.

Hosting the workshop at the University of Minho in Azurem, I prepared a hands-on workshop for all the attendees. The main goals were:

- Understand the history of OOP languages and Python
- Get to know Python's advantages and limitations
- Teach syntax and principal concepts of the language
- Drill down real-world problems using Python

23/02/2020 – 26/02/2020 Braga

## **ENEI 2020 Organizer**

---

Hosting the National Meeting of Informatics Engineering students in Braga was a great challenge. I took the opportunity to organize it with several colleagues and friends and it was an incredible experience. Learning how to set up a big event where transfer, accommodation and food needed to be assured. Coming from the whole country, these students were excited and enthusiastic to watch and hear all the speakers we invited. The event was such a huge success, with amazing speakers, talks and workshops during 3 inspiring days.

## ● **HONOURS AND AWARDS**

---

24/11/2023

### **Finalist in HackACity 2023 – Municipality of Porto**

---

Hackacity 2023 is an annual hackathon event held in Porto, Portugal, where data enthusiasts and professionals come together to solve urban challenges using open city data. The event, organized by Porto Digital within the Porto Innovation Hub, aims to develop innovative solutions that positively impact the community.

Alongside Continental teammates, it was possible to conceptualize, design and start of implementation of an urban prediction tool which may allow the municipality of Porto to better predict how to flow the traffic, take real-time decisions about better routes when starting construction of infrastructures and when to do some maintenance, etc using AI and Data-driven approach.

18/09/2022

### **Finalist and Honorable mention award – Federacao Portuguesa de Futebol (FPF)**

---

Data contest where teams challenge their knowledge and skills to improve the football industry. In this 1st edition there were 2 contests:

1. Understanding the impact of congested calendars on the performance of athletes
2. Analyse and improve fans' experience before, during and after football matches

Our solution aims to help every national coach select players for the final stages of national competitions: EURO or World Cup. It compares players, rates their performance during congested and non-congested calendars (consecutive games with less recovery time in between) and ranks the best players who performed better in deciding and important matches.

04/07/2022

### **Finalist of Hackaton Retail 4.0 by Galp – Galp**

---

The Hackathon Retail 4.0 by Galp is an innovative event designed to reshape the future of retail through artificial intelligence and technology. This hackathon, organized by Galp, focuses on improving customer experiences in retail settings, particularly in car wash services and the optimization of in-store product assortments.

With a team of 4 members, we were able to design, implement, test and deploy a computer vision tool which takes advantage of optical cameras in gas stations, service stations etc which can evaluate the level of dirtiness of a vehicle. At the same time, it also recognizes the license plate of the vehicle and, using a novel search engine, it finds out the model and brand of the car. Based on the car's dirtiness level and its brand/model, our solution can easily provide the most suitable wash program for that use case. It allows Galp to optimize its resources, save money and have a personalized experience for the end customer, based on the car manufacturer's guidelines.

## ● **HOBBIES AND INTERESTS**

---

### **Reading**

---

Spending so much time working on the computer, I find peace and a great mindfulness tool in reading. To improve my skills and knowledge, I usually prefer technical books. My areas of interest are Machine

Learning and Data Science, Communication and Personal Finances. I truly believe it is important to read and keep challenging ourselves with different perspectives to avoid stagnation and keep our brains stimulated.

## ● **DIGITAL SKILLS**

---

### **Data Science**

Open Cv | Deep learning | • Application programming and Artificial Intelligence (Machine Learning/Neural Network) | Databases: MySQL, MariaDB, PostgreSQL, MongoDB | Power Apps, Power Automate, Power Flow, Power BI | Keras | Tensorflow | Frameworks & Libraries: OpenCV, Sci-kit learn, NumPy, Pandas, SciPy, Matplotlib. | Data Science | Deep Learning | Machine Learning | Amazon Web Services | Tensorflow, Keras, Pytorch, sklearn | Apache Spark | MLflow | SQL | Apache Airflow | Python

### **Software Development**

C,C++,C Programming | Git | Java | Functional programing: Haskell, Racket

### **Digital Communication**

Google meet, Microsoft powerpoint | Remote working tools (Slack, Teams, Zoom, Meet, Discord) | Online communication (Slack, Trello, Discord, GatherTown, Google)

### **Team Management/Coordination**

Agile methodologies (SAFe, Scrum) | Project Management Software (Jira, Trello, Workfront, Sharepoint, etc.) | Atlassian (JIRA/CONFLUENCE) | Online collaboration tools (Miro, Trello, Asana, Zoom, Teams etc.)