

# Diogo Ferreira

Software Engineer



Diogo Daniel Soares Ferreira  
24 years old  
Aveiro

Portugal Driving License – Class B  
Fluent in Portuguese and English

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## Programming Languages

Python ★★★★★  
Java ★★★★★  
Elixir ★★  
C/C++ ★★  
Scala ★  
R ★

Hi! I'm Diogo Ferreira and I love to use technology to solve customer problems. I have a special interest in cloud and data-driven architectures. I am also passionate about nature, music and sports, being scout leader in Portuguese Scouts (CNE).

## Experience

June 2020 -

### Software Engineer

Talkdesk - Remote

Using Java with Quarkus framework and Apache Camel to build and monitor data-driven services. Build a pipeline that handles over 1 million events daily.



September 2019 – May 2020

### Data Scientist

Talkdesk – Coimbra

Design, implementation and test of NLP machine-learning based techniques to help agents in contact centers to improve the customer experience. Working with sentence embeddings, document similarity, word extraction from text and other NLP topics.



March 2019 – August 2019

### Student Researcher

Instituto de Telecomunicações – Aveiro

Study and development of machine learning models for time series prediction metrics in 5G slices, using Deep Learning techniques. Design and implementation of a distributed real-time architecture to forecast anomalies and act on the network to improve the quality of service. The project was developed in the Network Architectures and Protocols (NAP) group, having as mentor Prof. Dr. Susana Sargento.



April 2018 – September 2018

### Undergraduate Student Researcher

Instituto de Telecomunicações – Aveiro

Study of intelligence mechanisms in the core of a 5G network for monitoring, optimization and security. The project was developed in the Network Architectures and Protocols (NAP) group, having as mentor Prof. Dr. Susana Sargento.



### Undergraduate Student Researcher



Instituto de Telecomunicações – Aveiro

Continuation of a project made in a third-year course (“Project in Informatics Engineering”), in partnership with *Altice Labs*, having as main goal to develop a platform with support for management, monitoring, alerts and actuation over the data of a city, in real-time (*smart city*).

The project was developed in the Network Architectures and Protocols group (NAP), having as mentor Prof. Dr. Susana Sargento.

On the scope of the project, I had the opportunity to go to events as exhibitor, like *Techdays '17*, *Symposium 2017 CMU (Carnegie Mellon University) Portugal* or *Sharing Cities – Lisbon*.

July 2016 – August 2016

### Summer Internship at Aptoide



Lisboa

Design and build a software with the purpose of finding apps on the Aptoide Store with explicit content (nudity) using Machine Learning techniques, with accuracy over 95%.

## Education

### 2014 -2019 Integrated MSc in Computer and Telematics Engineering



Aveiro University

Finished with a grade of **18.21**, being the best student of the course finishing in 2018/2019, having a dissertation grade of **20/20** and having received a merit award.

### 2011 - 2014 Science and Technology course (10th – 12th grades)

Gafanha da Nazaré High School

Finished with an average grade of **17**.

## Publications

### Prediction of Low Accessibility in 4G Networks

Diogo Ferreira, Carlos Senna, Paulo Salvador, Luís Cortesão, Cristina Pires, Rui Pedro, Susana Sargento  
Annals of Telecommunications, 2021  
DOI: 10.1007/s12243-021-00849-9

### A Forecasting Approach to Improve Control and Management for 5G Networks

Diogo Ferreira, André Braga Reis, Carlos Senna, Susana Sargento  
IEEE Transactions on Network and Service Management, February, 2021  
DOI: 10.1109/TNSM.2021.3056222

### Distributed Real-time Forecasting Framework for IoT Network and Service Management

Diogo Ferreira, Carlos Senna, Susana Sargento  
IEEE/IFIP Symposium Network Operations and Management (NOMS), Budapest, Hungary, April, 2020  
DOI: 10.1109/NOMS47738.2020.9110456

### Root Cause Analysis of Reduced Accessibility in 4G Networks

Diogo Ferreira, Carlos Senna, Paulo Salvador, Luís Cortesão, Cristina Pires, Rui Pedro, Susana Sargento  
Machine Learning for Networking. MLN 2019. Lecture Notes in Computer Science, vol 12081. Springer, Cham  
DOI: 10.1007/978-3-030-45778-5\_9

### Breaking Text-Based CAPTCHA with Sparse Convolutional Neural Networks

Diogo Daniel Ferreira, Luís Leira, Petya Mihaylova, Petia Georgieva  
IbPRIA 2019: Pattern Recognition and Image Analysis pp 404-415  
DOI: 10.1007/978-3-030-31321-0\_35

## Major relevant skills

- Experience using **Apache Camel** to implement applications using Enterprise Integration Patterns
- Experience in event-driven architectures using micro-services and associated tools, such as **Kafka** or RabbitMQ (message queues), distributed databases and similar tools
- Experience in usage of web frameworks, such as **Quarkus**, Django, Spring Boot, Phoenix/Elixir or Falcon
- Experience using **Reactive Java** to build data-driven microservices using test-driven methodologies
- Experience using **Elasticsearch** as operational database for text-oriented products
- Experience in the implementation and testing of **NLP** algorithms, such as TF-IDF, LDA, word embeddings, sentence embeddings, document similarity and word extraction
- Experience in problem resolution using **Machine Learning techniques** and state-of-the-art **Deep Learning** techniques, with frameworks like PyTorch, Keras or Scikit Learn
- Experience in small and medium project management in a multidisciplinary team using **Agile** techniques
- Experience in **data analysis** problems using data manipulation and visualization tools such as NumPy, SciPy, Matplotlib, Jupyter, Pandas and similar
- Experience in **MLOps** tools, such as MLFlow, DVC, Sagemaker, and others

## Social skills

- Scout leader (Corpo Nacional de Escutas), where in 12 years I was also team guide and secretary/treasurer
- Volunteer in *Conta Connosco* project: a *pro bono* initiative where volunteers share their professional experiences with the aim of helping unemployed or young people in their careers
- Instructor in *Data Science Academy* from *Talkdesk*, in which I taught the *Deep Learning* module
- Part of the juvenile choral group at the Oliveira do Bairro
- I also did sports since I was 5 years old, playing Football/Futsal in several teams until I was 18 years being team captain on several occasions

All these experiences brought me bigger sense of responsibility, leadership, team spirit, punctuality and assiduousness.

## Interests

In my free time I love doing online courses. Here are some that I did:

- Deployment of Machine Learning Models - Udemy
- The Ultimate Hands-On Hadoop – Tame Your Big Data! – Udemy
- Machine Learning – Coursera
- Deep Learning Specialization – Deep Learning.AI
- CS224n: Natural Language Processing with Deep Learning - Stanford University

Beyond the digital world, I am also passionate about music, having attended several music summer festivals in the past years. I also enjoy sports, mainly football.

In my free time I also enjoy posting in online platforms (personal website, Medium, Dev.to) about software engineering and machine learning, reading books and attend events related to informatics, technology and programming, like JNation 2020, DSPT Day 2019, National Meeting of Informatic Engineering Students (ENEI 2019 and ENEI 2018), TechDays (2017) and Talk a Bit (2017), DSPT meetups among others.