

# Carlos A. Fernandes dos Santos

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🐙 [github.com/carlosasantos](https://github.com/carlosasantos)

## Summary

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Data professional with a PhD in Physics and 8+ years of experience in using Data Science and Artificial Intelligence to solve challenging academic and business problems.

Experienced in designing, building and productionising machine learning based solutions, and at managing teams to deliver said solutions, at scale.

Solid skills in python programming, mathematics, algorithms, MLOps and cloud platforms.

## Experience

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### Microsoft

London, UK

*Senior Specialised AI Cloud Solution Architecture*

*Jul 2021 – Present*

**Description:** Cloud Solution Architect, specialised in AI and Data Science on Azure, within the Microsoft Customer Experience and Success organisation. This role focuses on the strategy, design, and implementation of AI services and solutions for global customers. Main responsibilities include:

- Designing and building scalable AI/ML solutions that drive business value for customers. This is achieved by working with customers to develop Proofs of Concept and/or Minimum Viable Products, while ensuring a responsible use of AI.
- Supporting customers in the adoption of Machine Learning Operations (MLOps)
- Identifying and collaborating in the development of code and documentation assets that can be reused to further scale the adoption of Azure AI services.
- Liaising with Microsoft Engineering teams to remove key blockers and drive product improvements, based on Customer feedback.

### Accenture, Applied Intelligence

London, UK

*Data Science Manager*

*Dec 2019 – Jun 2021*

*Data Science Consultant*

*Oct 2018 – Nov 2019*

**Description:** Data Science Manager within the Applied Intelligence team, and part of the wider Strategy & Consulting practice. Key achievements include:

- Leading a global cross-functional team of Data Scientists, ML Engineers, Data Engineers and Frontend developers to develop digital solutions to improve and optimise processing plants for a mining organisation. These solutions, developed in Python and deployed in Azure, are to be scaled to multiple mining plants globally, and support the business goal of generating \$100M of value from data analytics in 2020.
- Managing, as the Data Science Lead, a team of 7 data scientists on a large project aiming to develop a solution that identifies product trends based on social media, for a large retail client. The solution is developed in Python, leverages NLP and ML techniques, and is deployed in GCP.
- Managing a team of 5 analysts and consultants. Key responsibilities include finding and securing chargeable projects, coaching and support with career development.

### Deloitte UK

London, UK

*Senior Consultant / Data Scientist*

*Sep 2017 – Oct 2018*

*Consultant / Data Scientist*

*Feb 2016 – Aug 2017*

**Description:** Data Scientist within the Risk Analytics team and part of the wider Risk Advisory Practice. The role consists in developing data science solutions to help organisations, within financial services, to gain market insights, minimise risk or drive process improvement and efficiency. Key achievements include:

- Developing a policy violation predictive model for a professional service firm, using Random Forests.
- Developing optimisation models for a Payment Protection Insurance (PPI) complaint operation, with a workforce of around 1000 people and approximately 100 000 complaints, for a large retail bank.
- Managing and developing a cognitive proof of concept, for a big four UK bank, to scrape and analyse large sets of news articles, in an automated way, aiming to support the credit underwriting process. This PoC was developed in Python and leveraged NLP and ML techniques.
- Developing of emotion, sentiment and topic models, leveraging NLP techniques in Python, to analyse audio files transcriptions, to automate the auditing process of several thousand hours of recorded phone calls, for a large insurance company.

**Description:** Postdoctoral research fellowship in the field of experimental particle physics, focused on the research and development of gaseous photon detectors dedicated to the studies of the nucleon structure. The work performed envisaged the upgrade of a large area detector of a major experiment at a world leading physics laboratory in Geneva – CERN, where a significant part of R&D activities took place. The main activities included:

- Processing and analysis of comprehensive data sets to validate the R&D carried out. Data processing and analysis performed using C/C++, Matlab and others, in Windows and Unix environments.
- Monte Carlo Simulations to study physics interactions.
- Development of hardware.
- Management of data acquisition leading to a deep understanding of complex structured data.
- Supervision of undergraduate students in R&D activities.

## Education

### Ph.D. in Physics

University of Aveiro

Oct 2009 – Feb 2014

*Aveiro, Portugal*

**Description:** Research thesis under the title “Thick-Microstructures for MPGDs: Simulation and Experimental Studies”. The research work was carried out between Aveiro, CERN and INFN Trieste.

### M.Sc. in Engineering Physics

University of Aveiro

Oct 2008 – Jul 2009

*Aveiro, Portugal*

**Description:** Research dissertation under the title: “Simulation of Electron Avalanches in Radiation Gaseous Detectors”.

### B.Sc. in Engineering Physics

University of Aveiro

Sep 2004 – Oct 2008

*Aveiro, Portugal*

**Description:** Research project under the title: “Energy Weighting in a Single Photon Counting X-ray Detector based in a MHSP”.

## Personal Skills and Competencies

### Languages

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|---|----------------------------------|
| ○ <b>English</b> ■■■■■   Native Language    | ○ <b>Italian</b> ■■■■   Level B2 |
| ○ <b>Portuguese</b> ■■■■■   Native Language | ○ <b>French</b> ■■■   Level B1   |

### Soft Skills

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|--------------------|---------------------|
| ○ Problem Solver   | ○ Good Communicator |
| ○ Critical Thinker | ○ Curious           |
| ○ Storyteller      |                     |

### Technical Skills

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|---|--|
| ○ Python ■■■■■                          | ○ MLflow ■■■■                          |
| ○ Matlab ■■■■                           | ○ Bash/Unix ■■■■                       |
| ○ R ■■■■                                | ○ SQL / NoSQL ■■■■                     |
| ○ C/C++ ■■■■                            | ○ Microsoft Azure ■■■■                 |
| ○ Pandas / Numpy / Scipy ■■■■           | ○ Google Cloud Platform ■■■■           |
| ○ Scikit-learn ■■■■                     | ○ Amazon Web Services ■■■■             |
| ○ TensorFlow / Keras ■■■■               | ○ Quantum Computing ■■■■               |
| ○ Machine Learning / Deep Learning ■■■■ | ○ Excel ■■■■                           |
| ○ MLOps ■■■■                            | ○ L <sup>A</sup> T <sub>E</sub> X ■■■■ |

### Certifications

- Azure AI Engineer Associate
- Azure Data Scientist Associate
- Azure AI Fundamentals
- Azure Fundamentals
- Google Cloud Platform - Professional Data Engineer
- Google Cloud Platform – Professional Cloud Architect
- Google Cloud Platform - Associate Cloud Engineer
- MIT Quantum Computing Fundamentals Online Program – a two-course certificate program to establish a foundation of knowledge for understanding the business implications of quantum computing.