

Real-time Analytics for Internet of Sports

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Overview

2 day training on open data science in the sports sector

Dates: 12th & 13th March 2020

Venue: The Open Data Institute - London

Times: 09:30 - 17:00 (snacks and drinks from 09:00)

As a partner of the RAIS project, the Open Data Institute will be delivering the first “hands-on” research training event in Q1 2020. This two day training event will focus on Data Innovation in the Sports Sector.

The training will match closely with the research areas of the RAIS project including:

- Distributed Sensing Infrastructure & Networking for Internet of Sports
- Security, Privacy, and Trust
- Data Mining and Edge Analytics
- Predictive Analytics

This hands-on training will act as a stimulus to help PhD students think about the opportunities of applying data science techniques in the sports sector. In addition to the taught material, a number of guest speakers will offer insights into the applications of data science in both the sports and other sectors.

The training will be split into a number of sessions covering the following topics:

Day 1

- Open Data Science - What, how and why?
- The internet of sports data - including guest speakers from the OpenActive project and external partners.
- Applying data science in the sports data landscape
- Hands-on - Building a dashboard from large quantities of sports data

Day 2

- Security, privacy and trust - Lessons from other sectors
- Practical steps to build and maintain trust
- Predictive analytics and machine learning
- Hands-on - Building a machine learning algorithm for predictive classification

By the end of the course students will be able to apply a broad range of data science skills and knowledge into their own work. We will do this by:

- 1) Building a profile of a data scientist and identifying the knowledge and skills required.
- 2) Exploring a number of case studies of data science applied in the sports and other sectors
- 3) Analysing the development of the sports data ecosystem, identifying future opportunities
- 4) Evaluating how to build and maintain trust, security and privacy when dealing with different sources of data
- 5) Applying a number of analysis techniques on data to discover insight
- 6) Examining the implications of applying predictive analytics and machine learning techniques to data
- 7) Creating a number of practical outputs to take away

About the ODI

The Open Data Institute (ODI) was co-founded in 2012 by the inventor of the web Sir Tim Berners-Lee and artificial intelligence expert Sir Nigel Shadbolt to show the value of open data, and to advocate for the innovative use of open data to affect positive change across the globe.

The ODI works with companies and governments to build an open, trustworthy data ecosystem.

To further this mission, the ODI strives to bring about sustainable behaviour change within companies and governments that hold and use data. This is done through three key activities:

1. **Sector programmes** – coordinating organisations to tackle a social or economic problem with data and an open approach.
2. **Practical advocacy** – working as a critical friend with businesses and government, and creating products they can use to support change.
3. **Peer networks** – bringing together peers in similar situations to learn together.

One of the ODIs key sectors is Sport, specifically through the OpenActive project. OpenActive is community-led initiative with the ambition to help people in England get active using open data. The OpenActive project has two key areas of focus:

1. Working with the community to develop standards for the release of open data from the sports sector.
2. Stimulating growth in the sector through the OpenActive accelerator programme which focuses on delivering benefits from the newly released data.

Logistics and requirements

1. Timings

Dates: 12th & 13th March 2020

Venue: The Open Data Institute - London

Times: 09:30 - 17:00 (coffee and breakfast snacks from 09:00)

2. How to find us

Our address is: Open Data Institute, 3rd floor, Quickhouse, 65 Clifton St, London, EC2A 4JE



We are in the redbrick building with red window frames on the corner of Worship and Clifton St. When you arrive just take the lift up to the third floor. You can find a map of the local area [here](#).

We are very well situated for public transport links:

Old Street Station (5 mins walk)

Liverpool Street Station (6 mins walk)

Moorgate Station (7 mins walk)

Shoreditch High Street Station (10 mins walk)

If you are coming from Old Street station take Exit 2, walk along City Road past the Sainsbury's Local and turn left onto Worship St (the turning is just after the Travelodge). Then take the third left onto Clifton Street and you will find the ODI offices (in the Quickhouse building) on your left on the corner of Worship and Clifton St.

3. What to bring with you

All you need is an open and inquisitive mind. This course also requires access to a laptop (at least one between two people). The laptop should be running a modern standards enabled browser such as Google Chrome.

4. Need to borrow a laptop?

We have a limited amount of laptops that can be borrowed. If you'd like to reserve one for the course then please send us an email at training@theodi.org. We distribute the laptops on a first come, first served basis.

5. Dietary/accessibility requirements

If you have any dietary / accessibility requirements that you haven't already told us about then please email training@theodi.org to let us know.

Detailed Agenda - Day 1

Time	Activity
09:00	Coffee and breakfast
09:30	<p>Welcome and Introductions</p> <p>The session will start with a welcome to the Open Data Institute, our vision and mission as well as Theory of Change for data.</p>
10:00 LO 1, LO 2	<p>Open Data Science - What, how and why?</p> <p>A modern data scientist is expected to be a catalyst for change in an organisation. In this session we take a holistic look at the skills required of a modern data scientist and why an open approach is essential. Through stories, we'll look at how open data science has been applied in many sectors and the risks of not having a balanced set of skills.</p>
10:45	Break
11:00	<p>GUEST SPEAKER 1: Izy Champion From Sport England</p> <p>Sport England's vision is that everyone in England feels able to take part in sport or activity, regardless of age, background or ability. This talk will introduce the key role data plays to get people active and how analysis can inform future direction.</p> <p>Izy Champion is a Data and Innovation Manager at Sport England. She leads Sport England's work around open data, including OpenActive, a sector-wide initiative to publish and use open opportunity data, and supporting the award winning This Girl Can to use data to help women and girls find activities that are right for them.</p>
11:45	<p>GUEST SPEAKER 2: Sahana Gopal from WILD AI</p> <p>WILD AI is a AI powered, science backed fitness app and smart coach for female athletes. Sahana Gopal, sports science researcher at WILD AI, will be introducing the science behind the app and how AI provides insights specifically for women. In addition to leading the research of female health, Sahana is an Olympic coach and weight lifter.</p>
12:30	Lunch
13:30 LO 3	<p>Applying data science in the sports data landscape</p> <p>In this session we will explore the process of discovering insight from data. We'll look at the techniques that can be used to discover insight from data and the important role that high quality standardised data plays. We'll also look at how to boost the quality of data ready for analysis.</p> <p>A key part of this session will be to look at the OpenActive project. Funded by Sport England and led by ODI, we'll introduce the activities that are creating a rich ecosystem of sports data that anyone can access, use and share.</p>

15:00	Break
15:15 LO 7	Hands-on - Discovering insights from sports data In this practical session we will be getting hands-on with data from OpenActive to build an powerful faceted browser for data. We'll look at how having a complete view on data can reveal insight not contained in a single source.
17:00	End Day 1 - Optional London Walk and Dinner

Detailed Agenda - Day 2

Time	Activity
09:00	Coffee and breakfast
09:30 LO 5	Data science - The maths and stats behind machine learning and AI (part 1) One of the most essential skills of a data scientist is that of applying appropriate statistical models to data. In this session we start to look at the maths and stats behind machine learning and discover how shapes and trends in data can be used to discover insight. We also look at how, when it goes wrong, it can go very wrong.
10:45	Break
11:00 LO 6 LO 7	Data science - Big data and machine learning Building from the last session we look at how the processing of big data can cause challenges and what to do to ensure analysis is scientifically robust. Specifically in this session we look at how machine learning is used to do classification and recommendations based upon ever changing inputs. In this session we will challenge participants to build a classification algorithm for a set of data.
12:30	Lunch
13:30 LO 4	Ethics, security, privacy and trust This session asks the question “What happens when machines learn bad habits and what can be done about it?” We introduce a number of case studies and discuss the importance of considering ethics, security, privacy, trust and openness when using data. We will introduce the ODI Data Ethics Canvas as a tool to help guide any projects or research that use data and spend time examining how it can be applied in different situations.
15:00	Break
15:15 LO3, LO7	The future of data analytics in sport This interactive workshop session challenges participants to think about how to approach a research question in the sports sector. Given the learning from the past couple of days, participants should reflect on their learning to design an approach to solving the research question as well as considering the implication outside of the research sector. Participants will work in groups before being asked to present back their approaches to conclude the course.
16:45	End Day 2

