

# An Experts Guide to Performance Analysis E-book.



Rob Carroll  
[thevideoanalyst.com](http://thevideoanalyst.com)

## About This eBook

Since thevideoanalyst.com was founded in 2008 there have been over 150 articles and blogs published on the site. Many have stood the test of time (some have not) but all have generated good debate and interest. The aim of thevideoanalyst.com was to create a central hub of all things Performance Analysis – it's hard to believe, but in 2008 you would have found it very difficult to find any information about this specialty on the web. Now we see countless blogs and content created by the companies in the industry, analysts working in the field and many, many fascinating pieces written by analysts working 'outside' the club structure.

So almost 5 years on, it was about time all the best articles from thevideoanalyst.com were pulled together into one handy eBook for you to browse at your leisure. The eBook is broken into 5 distinct sections and contains pieces written by Rob and guest authors (thanks to everyone who has contributed). I hope you enjoy it but above all I hope the following pages are useful to you as a coach or an analyst.

## About The Author



Rob Carroll is the founder of the website thevideoanalyst.com, a site dedicated to bringing you a wealth of information in the area of video & performance analysis in sport.

Rob has worked in the area of performance analysis for the last 9 years and has worked across many different sports and in many different environments. He currently holds an MSc in Performance Analysis from UWIC University in Cardiff and also holds an ISPAS Level 6

award. He continues to learn as much as he can about this ever diverse field.

Rob also runs a sports data business called Gaelic Stats. This business collects performance metrics on behalf of the National Governing Body, teams and media organisations. You can learn more about this at [GaelicStats.com](http://GaelicStats.com)

## Want to get in touch?



@thevideoanalyst



<http://facebook.com/thevideoanalyst>



[ie.linkedin.com/pub/robert-carroll/10/45b/3ba/](http://ie.linkedin.com/pub/robert-carroll/10/45b/3ba/)

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# An Experts Guide to Performance Analysis E-book.

## Chapter 1 – The Basics

All about the basics of Performance Analysis. From tips on buying a system, to using a video camera, to what you need in your PA kit bag.

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## Video Analysis on a Budget



Performance Analysis often conjures up images of specialist coaches working on laptop computers and, where the budget allows this will usually be the case. There is however everyday equipment available, that won't break the bank, that can be used to provide useful information to help players and teams identify areas to work on in training.

My one warning here; while the lack of specialist video analysis software means you can still do a good analysis job, the time needed will increase dramatically. A good working relationship with the head coach is essential so as you make best use of your limited time.

## Notational Analysis

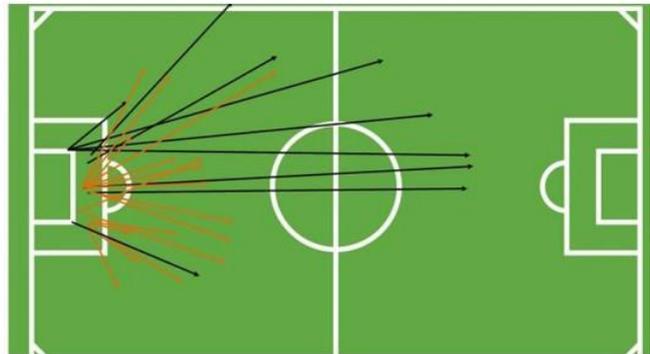
This is by far the cheapest method of analysis and if done correctly can certainly give you some very useful information to work with. It is worth mentioning that notational analysis can be done live during a game and without having the game recorded, although if you have the game recorded you can analyse in much more depth afterwards.

There are many different forms that notational analysis can take but the two most popular are frequency tables and Schematics ([check out this video for more on Schematics](#)).

Frequency Table

RUGBY					
Home Team	Lineouts	Away Team	Home Team	Penalties, Press Contested	Away Team
	Won Clean			Not Releasing	
	Won Badly			Off Feet	
	Lost			Offside	
	Crooked				
Home Team	Scrummings	Away Team	Home Team	Fouls	Away Team
	Won Clean			Knock On	
	Won Badly			Forward Pass	
	Lost			Kicked to touch	
	Penalty/Freekick			Lost in tackle	

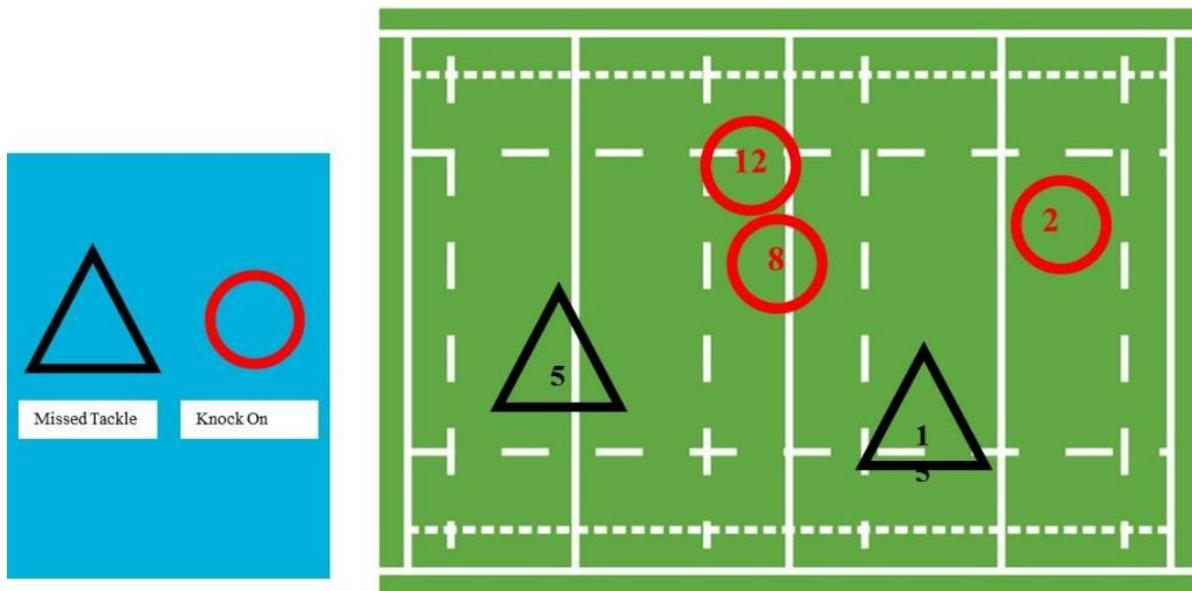
Schematic



- A frequency table is a simple case of creating a table based sheet and ticking off each event as it happens.
- A Schematic on the other hand involves plotting what happened on the pitch, this method gives you a more graphical representation of the events.

Notational Analysis, especially when done live, is very time sensitive, the action won't wait for you to record everything you need. Be selective in what you look for, it is better to record 5 things accurately than 25 inaccurately. Because of the time pressure you need to come up with some simple techniques to get as much information as possible in as short a time as possible.

In this example (below) you will see that as well as recording where on the pitch an event has happened I have also recorded some information using a symbol and used the player number to give me even more information.



These little combinations will mean you will get a good account of what happened in the game as well as who performed well. Don't be afraid to mix and match the methods above. There is no reason why your notational analysis sheet could not be split in half, with one section being used for frequency stats and the other for a schematic of one particular aspect of play.

### **It's not what you said, it's the way you said it!**



We've all heard this statement at least once in our life. Equally as popular is the statement that body language constitutes 70% of communication. With both these statements in mind it is vital that you consider, not just **what you collect** but, **how you deliver** it. I would always work off the principle that a summary of the match should fit on a single page and be as visually appealing as you can make it.

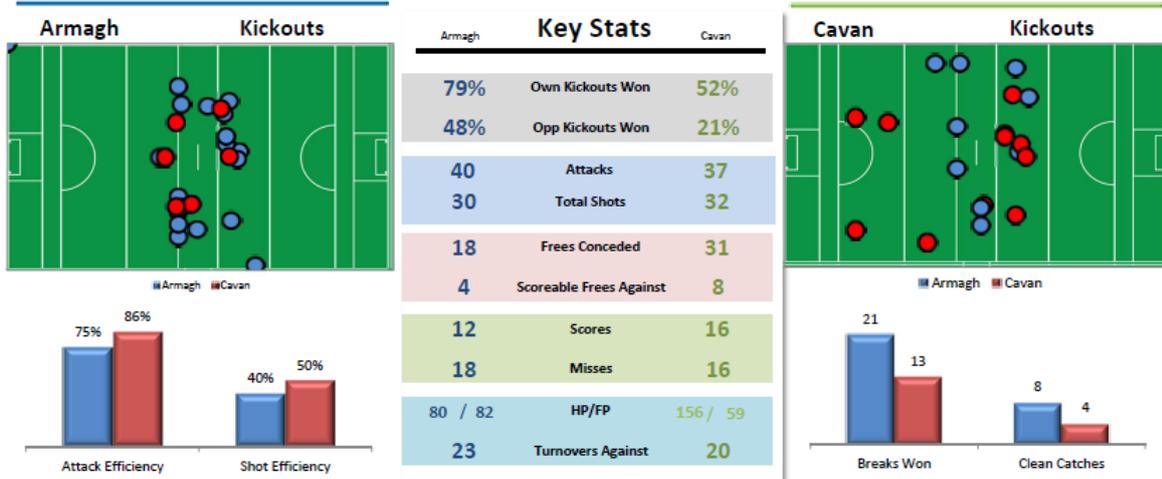
I have written about the example below before but I think it is a powerful overview of the game. In this case the analyst has picked the 8 key stats that quickly summarize the game. These stats aren't difficult to collect and nearly all of them could be collected without having to re-watch the game on tape.



1 - 11

Armagh v Cavan  
Maurice Deegan  
Ulster

1 - 15



This presentation is done with excel; the data can be copied into excel from your notational analysis sheet and with a little bit of practice and adaptation for your particular sport there is no reason why you couldn't produce something like this. The great thing about using a programme like excel is that once you have done this once it should just be a matter of copying and pasting the stats each week, the formula will take care of the rest. Don't worry too much if you can't get it to look exactly like above, the point is to look at ways to improve your presentation, not to be a graphic designer.

**(Too much) Video kills the players attention!**



If you want to add real value to a team you will need to look beyond simply copying the entire game to DVD and handing to the manager. This is a really cumbersome method of analysis and offers the coaches no easy way to show certain clips back to the players. Even when coaches and players try to watch the video they will spend more time trying to find the relevant clips than actually going through them with the players. In this case video analysis becomes more work than it's worth.

There are free, simple to use packages that can help you cut a selection of clips and burn them to DVD. For example you could take out all the corners in a game and burn them to a separate DVD. This means when the players and management sit down, all the corners play one after the other and there is no time lost looking for the relevant clip.



## Preparing and Using a Video Camera for Performance Analysis

Using video within the analysis process is only productive if you have good quality footage. This article highlights some of the critical factors to consider when using a video camera.

### Fit For Purpose

The distance and zoom required can sometimes be a personal preference but as an analyst it is up to you to advise on the best angle, distance and zoom for your video. Always keep in mind the purpose of your video. If the coach wants the video for tactical reasons it is important that you have the correct angle and zoom for this. Likewise if a coach is more interested in looking at some of the techniques of players you may need to get closer to the action meaning you will lose some tactical aspects. **Knowing the purpose of your video and explaining the pros and cons of each to the coaching staff is a vital skill as an analyst.**

### Distance and Zoom

Using the zoom during filming takes practice and experience. Relying heavily on the zoom during filming can result in an end product in which the picture is constantly changing or being adjusted. This makes it difficult to concentrate on the performance when subsequently analysing it. Usually if you are looking at technical aspects of play you will want to video from a wide angle. This does not necessarily mean a wide angle lens for your camera, although that can help, but more important is the height you can video from. The higher you get the easier it is to maintain a wide angle.

Here is a screenshot of footage taken from the TV v's my own camera work. No prizes for guessing which is of better use to the coaching staff.



When discussing this situation with the player the coaching staff can clearly see what options the player has and perhaps should have taken.

### Angle of filming

In the above image I am in the press centre of Croke Park (80,000+ stadium). I understand not everyone will have such a unique view. As an analyst you will find it difficult to get a real perspective of the pattern and distribution of the players unless from an **elevated position when reviewing the footage**. When not in an adequate stadium I usually find that taking footage from behind the goal is the most useful. As you can see from the image below. At a

height of just 25 feet I can adjust to the zoom to still see most of the pitch. The same height from side-on would not give me the same view of the pitch.



## Summary

Using a video camera requires practice and some experience. The key factor to getting good footage is to think through collecting the video prior to pressing the record button. Video is an excellent support tool for athletes and coaches but they are unable to compensate for a poorly thought through camera position or the wrong level of zoom.

## Equipment check list

### 1. Camera Storage

Although DV tapes are rarely used anymore you still need to make sure your camera has enough storage capacity. Some cameras come with built-in storage capacity, while other require SD cards. Make sure you have enough storage space.

### 2. Tripod

If you are filming any length of time then a tripod is essential to keep a smooth picture throughout. Make sure the tripod can move freely in two dimensions so that you can track what you're filming effortlessly.

### 3. Long Life Battery

This is perhaps the most important element to check. Most camera only come with a standard 30/60 battery life. Purchasing an additional long-life battery is essential. Make sure it is fully charged as most ground don't have a power source handy.

### 4. Rain Cover

If you are reading this and work in the UK or Ireland you will know that even sports played in the summer are not immune to the rain. It's important to have good quality rain gear for both yourself and the camera equipment.

# What Goes In A Video Analysts Kit Bag

Having video analysis software is not the only tool you need as a video analyst. There are some items that are essential and others than are a good optional extra. Below you will see 3 items for each category; Essential, Recommended, and Optional Extra. This should give you a good place to start when preparing your own war chest. Any suggestions of others please post a comment.

## Essentials



**Software:** The most important part! Make sure it is user-friendly, there is good technical support and that you will receive training in the product. There is no point having a tool and not knowing how to use it. It can be difficult to compare like with like as each company will have different specs, don't be afraid to speak to the company's and existing users.



**Camera:** There is little difference between the makes these days. Ideally you want a camera with a wide angle lens so you can get closer to the action. And you will need to make sure the battery lasts an entire game (have a spare!). The 3 main formats of camera are Hard Drive, Mini DV and DVD. By far the most widespread is the Hard Drive camera as these offer the most flexibility. These can start at €250



**Laptop:** You should always check the spec of the software before buying a laptop but presuming you have done that; You will need high memory above 120GB, a firewire port or USB & converter for live analysis and DVD burner. If you already have a laptop there is a good chance whatever software you go for will work on it. The software tends not to take up many resources, it will be the video files that do that. Just make sure if the software goes onto a PC or an Apple Mac.

## Recommended



**Projector:** Every Video Analyst will have a projector in their kit. You can't rely on hotels and clubhouses to have TV's or projectors to use. Remember you don't need to spend a fortune but you need something reliable. Projectors are notoriously temperamental so if you are borrowing one make sure to test it before beginning your presentation. The price of projectors are falling all the time. There are even some great pocket projectors on the market for a more convenient to option.



**External Memory:** Video can take up a lot of space and it is good practice to have two copies of your files – Just In Case! – External hard drives are really cheap nowadays, they are small and portable and have large memory. I prefer the small portable devices rather than the big desktop version. Although the memory is slightly less on the portable version, it more than makes up for it with the ease to carry it around.



phone.

**DVD Burning Software:** Different from the software you might use to analyse matches – DVD software is a must for creating movies, setting them to music and sharing it with your players. Most commercial packages don't directly burn Video DVD's but we are beginning to see more and more teams using online solutions to sharing their analysis with players or remote athletes. Eventually you would see all this analysis pushed to a

## Optional Extras



**Speakers:** Sometimes sound can add a great affect to your movie. Make sure you have portable speakers in your kit. Even crowd noises can add atmosphere to your video. You can also look out for projectors that have built in speakers. This will mean you don't have seperate items to carry and make sure you never forget them. If you show motivational movies having a good set of speakers is vital.



**Laser Pointer:** Maybe more useful to the manager & coaches than to the video analysts but this can save managers using corner flags or other things lying around. It will save you time and make your presentation look more professional. These can be bought on the internet and can cost as little as a few €/£ – Also consider a powerpoint clicker if you use powerpoint presentations alot.



**Tripod:** This will keep the picture steady throughout. Certainly when you go to re-watch the footage you will appreciate a tripod. Bear in mind, however, that sometimes filming conditions don't facilitate a tripod. Especially important if you are analysing technique in any way. There is nothing worse (or useless) than shaky footage. Tripods will cost very little and significantly improve you video footage.

# The Coaching Process and How Technology can Play it's Part

From Tiger Woods to Wayne Rooney, top sportsmen and women surround themselves with top coaches. This is because a coach's job, from the time you start playing sport as a child until you reach the heights of being the best in the world, is to offer an expert opinion on performance and guide improvement.

## The Coaching Process:

At its simplest the diagram (below) outlines the coaching process. This process of an athlete performing a skill, being observed by the coach who then makes recommendations/suggestions is known as the coaching process and is performed every time an athlete performs a skill. The coaching process still exists even if you are unaware of it or that it is not done in any formal way.



In order to improve an athlete's performance level it is vital that you perform to the best of your ability in 3 of these 4 steps (you can't perform for the athlete).

Traditionally, coaches' observation has been based purely on looking at the athlete without any method to record the performance. The problem with only relying on your 'coaching eye' is that it is highly unreliable. For example research has shown that coaches can only recall about 30% of key factors in a game. This is much to an unreliable source to base the rest of the coaching process on.

Because of this problem coaches need to recognise the importance of recording aspects of performance as they happen rather than trying to recall what happened. Using pen and paper is a great way to start, but tools like video cameras and computers can add significantly to the accuracy and functionality of the observation stage.

## **Performance Analysis**

Analysing performance is where your coaching expertise plays its biggest role in the coaching process. Observing the performance only informs you of the problems, devising a strategy to improve performance is the next step. This is where all your hours on the training field, coaching courses, meeting coaches and learning come into play. As a best practice don't try and change too much at once, players like bite size pieces that they can work on.

## **Player Coach Interaction**

Finally the coach – player interaction completes the coaching process before it begins all-over again. Athletes like clear, concise guidance. The more specific you can be about how well or badly a skill has been performed the more likely you are to see a change in behaviour. For example there is no point telling somebody they simply performed well or poorly, try and give them something specific to work on. E.g. "Great shot Johnny, next time keep your head down for longer, but that was a great effort."

The above statement offers encouragement as well as a clear message to work on 'next time, keep your head down'. Players have different learning styles, some like verbal feedback, others visual and some won't learn until they perform the skill themselves. It is important that you recognise these differences among athletes when you plan your feedback. Technology is playing an increasing role in the feedback stage as athletes today are the MTV generation, the trust and use technology on a daily basis they can relate to it a lot easier.

## **Conclusion**

In summary, it is vital that as a coach you understand the importance of accurately observing your athletes and how relying solely on your coaching eye will limit your ability to coach effectively. Even using pen and paper will greatly improve the quantity and accuracy of information you have.

Forming a strategy for improvement is a vital stage in the coaching process and this is where a lot of your coaching knowledge comes into use. Finally, as a coach, you must understand the importance of feedback – it is no use you knowing something if you can't get that message across to your athletes. Consider different ways of presenting information in order to facilitate different learning styles.

## Choosing A Video Analysis System

Investing in video analysis software can be a big decision and there are a couple of things you need to consider carefully before making that leap.

### Why?



It is important to understand the reason for getting video analysis software. I am not talking about whether it has any benefit or not (I am hoping, if you have read through this site you have decided it is), more so what information do you want to get out of a system. These can roughly be broken into 3 main areas;

1. Team Analysis
2. Biomechanical/Skill Analysis
3. Fitness Data

It might well be the case that you are looking to cover only one of these or perhaps all 3. If you are clear about the reason for buying a system you will be much more direct and focused in your research. In my experience you will find a lot of manufacturers who will cover 1 & 2 in the same software but very few who can do all 3 very well.

### Who?

Who will do the analysis for your team. A common question I often get asked is how difficult is software to operate and surely you need a degree to do it. In reality that is far from the case. Most softwares (not all) are fairly intuitive, as long as you are willing to give it a bit of time you will pick up most of the key aspects to it. That said however, I cannot recommend highly enough getting some professional training done at the start, this will save you countless hours in the long run.

One important thing to consider, especially if you are the head coach, is that although you might be well able to do it - do you really have the time? Some coaches want to do everything for themselves, but as all you analysts out there know, video analysis can take hours and as a head coach you have to consider if that is the best use of your time or if you would be better employing somebody to do the bulk of the work and the you apply your expertise at the end.

### Which?

Which software to choose? I am not going to recommend any particular brand here, there are many many manufacturers around the world and a simple Google search will find most of them. What I will do is point out some key things you need to look out for when speaking to any of these companies.

## Different Versions under the same name;



All of the major manufacturers have many different models under the same company name. This can catch some people out. When you see mentioned on a website that 'Super Duper FC use our software' make sure the company are crystal clear that you are buying the same one, or if not that at least you are aware of it and what the differences are. Although these cars above are made by the same people and have the same technology behind them - **they are clearly different cars.**

## Price



There is a saying that **'if you buy cheap - you will buy twice'**. Nobody wants to spend more than they should but it is important to keep this statement in mind when looking at different models. Don't just look at meeting your needs for today, think a little into the future about what you might require in 6 months or a year down the road.

To use the car analogy again; when you buy your first car, anything will do, as long as it has four wheels and engine you can put up with anything. But as you begin to drive you realize that power steering, central locking, electric windows and a stereo are all integral. Be sure to ask questions of the companies like 'In a years time, if I wanted to progress what I do, how will the software help?'

As a rough guide you can spend anything from a few hundred up to a few thousand £/\$ on a system.

## Platform



This is really a question of MAC v PC. This debate has and will be raged for along time, and I think its best to leave it to the fanatics on both sides to have very strong opinions on this subject. What I will say is that there should be a compelling reason for you to change what you currently use. Most companies will develop for single platform, unless you can find a good enough reason I think you should be buying software to use on what you are used to. These can be a lot to learn without having to learn a new operating system.

One word of caution here; check the manufacturer's history of updating their software when new versions of an operating system come out. For example when windows 8 came out did the companies immediately release an updated version? You don't want to have to use an old operating system forever.

## Technical Support

This point cannot be stressed enough, although video analysis can seem like a daunting task to start with, it is a relatively straight forward process. Having a good training programme and after sales support service will make all the difference in maximising the benefits of any system. "Talk to people who are already using a system ask them what the company are like and any pitfalls to look out for when choosing a system". They are the best source of information.

Another good way to check out the support is visit the forum sections for these companies. You will be able to scan through some of the issues people are having a quickly see how they are resolved. It could also be a good place as other users what they think of the system and any recommendations they would make.

## Summary

- Know why you are buying software - this will focus your mind and ask the right questions.
- Think about who is going to do the analysis - maybe they should be involved in researching the system.
- Be careful of the different models, make sure you know exactly what you are getting.
- Price - the cheapest isn't necessarily the best. Think a little further ahead.
- The software should integrate into your current analysis/technical know-how, not the other way around.
- Support, support, support; when you have a deadline to reach you will be grateful of any support you can get.

## 10 Commandments of Performance Analysis



The Ten Commandments

Performance Analysis is still a new discipline and we are all learning the rights and wrongs of the job. With that said however, there are a number of similarities across sports and the job demands are similar at all levels of sports. Regardless of the sport you work in there are some fundamentally important things you need to get right or your analysis work will go to waste.

In my time working and talking with Performance Analysts all over the world I have come up with my 10 commandments of Performance Analysis. If you think there are any I have missed or some that you live by yourself, leave a comment below.

### 1. Build Trust



Too often I see performance analysis used as a stick to beat players with. Analysis is like any coaching tool, you are trying to improve your players and yes there is a time and place to highlight mistakes but, if you constantly use analysis to criticize you won't get any buy-in from the players. Remember that the analysis is a learning tool and needs to be used as such with both constructive criticism and positive reinforcement.

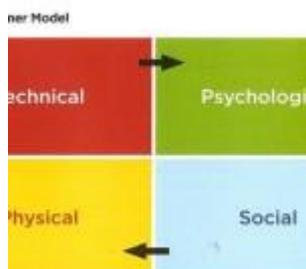
### 2. Presentation, Presentation, Presentation



It is so important to work as hard on your presentation as anything else. If information is presented badly it will just be lost. Another way to think about it is like a tabloid newspaper. If there is a big point to be made make it stand out, you can always have the detail for those who want it. Don't lose players and management in a sea of

information.

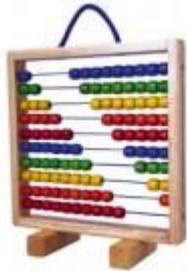
### 3. Technical, Tactical, Physical & Mental



Remember that as an analyst you need to deal with the 4 areas above. Granted many other staff will be employed to deal with technical, mental and physical aspects but the analyst has a role to play. I'm sure most analysts have been asked to make a motivational movie - but how many have worked with a psychologist to look at body language or positive reinforcement on a play-by-play basis? Likewise how

many of you take the camera onto the training pitch and video the technique of players? Analysis should cover all 4 areas.

#### 4. Not everything that counts, can be counted



This is important to remember, there is a temptation to think that you can measure everything. While I would like to believe that, I don't think it's true. There are sports that lend themselves more to prediction and precise analysis but then there are other that still require a healthy balance of the objective and the subjective. Don't step measuring everything you can, just be aware that some things can't be counted.

#### 5. Analytics does not replace decision making



We all know that famous saying; 'Lies, damn lies and statistics'. Keep that in mind, although many old school coaches would have you count nothing it is important to keep you analysis in perspective. Statistics can sometimes lie and they don't always tell the full picture.

Make sure to listen to coaches and players subjective analysis. Analysis doesn't always tell the full story.

#### 6. Understand your Sport



Nobody is saying that you have to become an expert coach but you do need to understand the concepts and strategies surrounding your sport. As an analyst you are often the eyes of the coaching staff, therefore you need to understand there coaching philosophy and objectives. It would be important that you can get to a level 2 coach in your sport. This will show employers a good level of understanding as well as knowing the job technically.

## 7. Don't just collect stats - make a difference



I can't stress this enough. I don't know how many times I have been shown pages and pages of information on a game and while the information is interesting I have to wonder if it's really useful. There is no point collecting information for the sake of it. You have to start from the point of view that will the management use the information and will it affect the decisions they make. If not - why are you collecting the information?

## 8. Good Camera Work



Your analysis depends heavily on the quality of your video footage. If you are not collecting the footage yourself make sure you have spoken to the cameraman and explained exactly what you need (zoom and distance).

Make sure you are collecting video footage that is fit for purpose and use a tripod wherever possible.

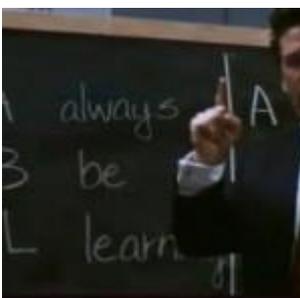
## 9. Be Prepared



In television there is a saying 'never work with children or animals'. My own mantra is be prepared for failure when working with technology. Despite your best intentions and the progress of technology it can still let you down. Make sure you have everything charged and if at all possible have a backup.

Create a checklist and before you leave have everything in order.

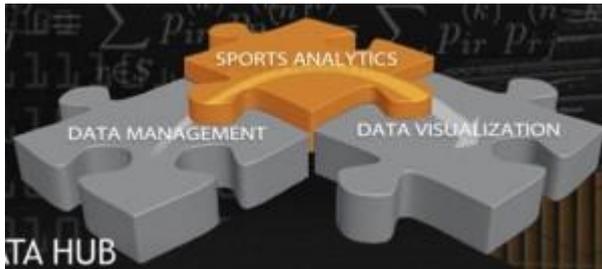
## 10. Always be learning



As I mentioned at the start we are in a brand new industry, I would estimate that it is really only 15 years old. When you compare that to other disciplines like strength and condition and psychology there is still a long way to go in terms of finding out best practices. It is vital that you are willing to open your mind to new ideas and concepts. Conferences, networking events and blogs are a great way to both learn and share new ideas. You should never stop trying to learn new things about analysis, we still have so much to find out about the area.

## A Model for Managing Performance Analysis

I am always (pleasantly) surprised by the people who visit the site and I enjoy it even more when comments are left. Last week I wrote a piece calling on the software suppliers to improve their usability/visualization of information. A few hours after publishing the piece I was left a comment by Kevin Goodfellow from [Sports Data Hub](#). I had never spoken to Kevin before but was delighted with his feedback, despite the fact that he poured cold water on my hope for a one size fits all approach.

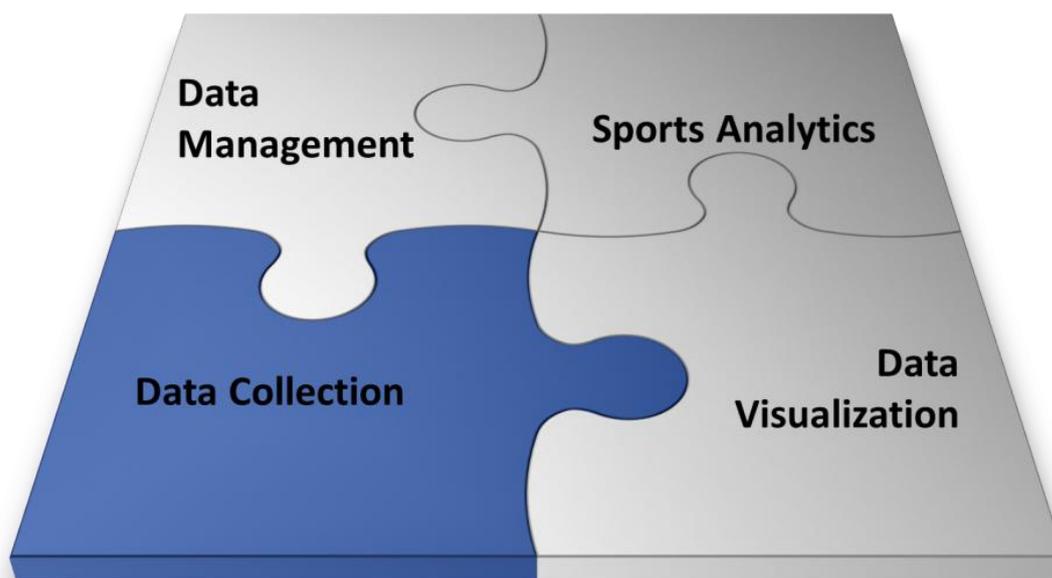


I was intrigued by Kevin's comments so decided to email him with a retort. He promptly replied and I couldn't argue with his view point - which effectively was that it is too much to ask one company to do all the stages of the analysis process. I had never thought about breaking the analysis process into such distinct steps before.

You should also check out [this video](#) of Kevin presenting at the MIT Sloan Sports Analytic Conference where he outlines his thoughts.

### A New Model

Some people like models and others don't think much of them. I find they help you compartmentalize what are sometimes difficult concepts. This model allows you break the 3/4 sections of the analysis process into the box that it belongs in and think about them independently. We all do this whether we think about in this way or not. We all **Collect - Manage - Analyse - Present** information & video. And certainly over the last few days I have been thinking more and more about these functions independently rather than looking for a one-size-fits-all approach.



## 4 Step Process

I have added in a 4th step called Data Collection but either way the concept is the same. In fact as I began to look at all the tasks involved in each step I realised that it is likely that no software will ever do all 4, and in fact if a company tried to do everything it would likely be too big and cumbersome and would severely limit your scope to adapt it to your own needs. Also thinking about the steps separately allows you change one or two as your budget changes. I will give a brief overview of each section.

## Data Collection



I would include the analysis software and 3rd party sources in this. Software like Prozone, Sportstec, Dartfish & Longomatch and many other would fall into this category. I would also include data collection sources from mobile devices like the iPad and iPhone in this category. The last option to consider in this step is data from 3rd part services; companies like Opta & Prozone in the UK would fall under this category but also now many sports produce stats that are freely available on websites.

**Note: Think about how important it is that the collection is as easy as possible as well as how the collection method fits into the other steps of the process.**

## Data Management



Kevin listed data management as the most important step in the process and I can't disagree with him at all. In fact if you get this bit right it makes life so much easier. Data Management can often get overlooked as it takes time and it is certainly not the fun part of the job. Nobody is going to be down the pub on a Saturday night telling stories of Data Management! But getting this step right is crucial. There is nothing more unproductive as working your way through excel sheet after excel sheet trying to cut and paste data

from 20 different sources.

I am currently working on quite a big project involving a huge quantity of data and the management of this data is proving the hardest bit to crack. Most people will use Excel but maybe for the bigger analysis departments they should look more at databases.

**Note: Spend time on this part of the process it will make the next 2 steps much easier and ultimately save you a huge amount of time and will mean you can work more efficiently.**

## Data Analysis

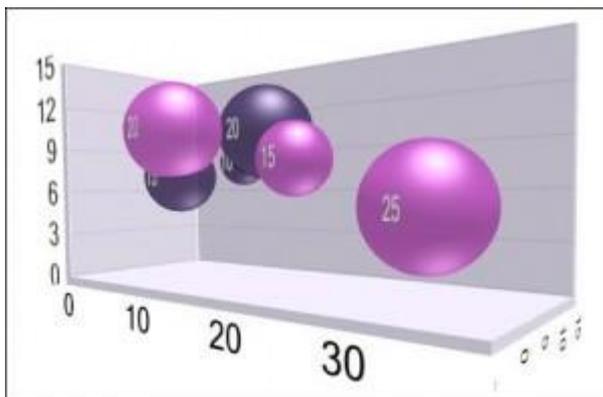


This is the statistical analysis we do on data. At a beginner level you are probably looking at some totals, averages and trends over the last 6 games. At a more advanced level you might be calculating standard deviations, variance or conducting regression analysis.

**Note Regardless of the level of analysis you do it is important that the way you collect and manage the data makes life easy here. If you have collected data**

**from different sources manage it in different ways - it makes real statistical analysis very difficult and cumbersome.**

## Data Visualisation



This is the exciting bit - and the piece of the puzzle that the players and coaches will see most. Certainly for video analysis you are mostly going to use the same software you used during the collection process. That is all fine but it might be worth looking at other methods (software or hardware) that can make this process more coach/player friendly. i.e. Think of the iPad as visualization tool. I was also intrigued to learn that there is software out there specifically aimed

at improving your visualization. They take the raw feed of your data and give you loads of different options and templates to present your software differently.

**Note: Data Visualization is the fun part of the job and it is the 'front of house' element to your job, but as Kevin said in his presentation if you get the management part wrong the rest becomes difficult, cumbersome and time consuming to manage.**

## Final Thoughts

This model has really got me thinking over the last few days - rather than looking for a tool that can do all of these maybe we are better of treating the tools we use for their speciality. As analysts a large part of our job is finding the best solution for each piece of the jigsaw - one that meets our budget and our expectations and managing that process as best we can.

# An Experts Guide to Performance Analysis E-book.

## Chapter 2 – Presenting to Players

This chapter is all about the players. How long should presentations last, what are the best ways to reach players and should all coaches be analysts?

1. How long should a presentation last?
2. Video Analysis Homework.
3. Performance Analysis – Tactics Team.
4. Flipping Fantastic - Flipping the coaching process.
5. When will coaching befriend performance analysis
6. Should all coaches be analysts?

## How Long Should a Presentation Last?



In most of my analysis work I have tended to work with different teams and different sports at the same time. While this can have its disadvantages it has given me a great opportunity to work with many different styles of teams and managers. This weekend I got the opportunity to go into camp with a team for 3 days and work with them on a more full-time basis.

While we covered many things over the few days, there was one topic in particular that I

wanted to discuss here.

### How long should a video presentation last?

This is a question that has always intrigued me, along with others; How long is too long, how much interaction, how much talking over the video or how much video should be played to let the players observe?



The presentation is so important - **it's not what you said, it's the way you said it.** No matter how good your analysis is, if you get the delivery wrong the players will learn nothing. So here are my thoughts on what makes the best presentation.

- 3 - 6 mins of video
  - containing about 5 - 15 examples
  - the coach should know the order of the clips
  - and have a good working knowledge (notes) on what to say
  - Player interaction should be encouraged
  - The coach and analyst should be prepared to play the clip a few times
  - and at different speeds so the players can see clearly
- The total presentation shouldn't more than about 30 mins (max). Research suggests that after 10 minutes there is a drop off in attention and focus. Perhaps a change in presenter, short break, humorous moment etc) to re-engage.

Rather than getting hung up on the number of clips perhaps it is better to look at the number of concepts you are going to cover. You might decide as a coaching team that it is better to limit the number of topics and be clear with the players *"today we are going to look at 5 clips on our defensive transition and I want you to pick out what we did well or could do better."*

There are obviously times when you may need to break from this, these are meant more as general rules but the point is this; keep it concise and make sure to interact and explain the clips to players.

## **Frustration**



I tear my hair out when I have to spend 3-4 hours preparing a presentation, I sit down and show it to the coach. The coach will get me to stop the clips and explain why that is such a good example of this or that, but when we get in front of the players they tell me just to play the clips, one after the other, with no discussion or explanation for the players. It is so frustrating to stand in a room and see all of the players looking up wondering why they are being shown some of these clips. There is a time and a place to give players footage and let them watch it by themselves but not in a team meeting.

Some of the problem is training, coaches that don't use video a lot maybe don't know what the best way to present is but I can tell you from experience that just playing 5 - 10 mins of highlights to room of players is a pointless waste of time. Thankfully this weekend the coaches I was working with were spot on with their use and timing of analysis work.

## **Further Reading**

[Dr John Medina - Brain Rules](#)

## Video Analysis Homework



I'm sure in most organisations video analysis takes the form of player/manager meetings held to debrief from last week's game and probably another session looking at next week's opposition. Often in these meetings new concepts, formations or game plans are explained. It can be difficult to measure, but how effective are these meetings and what is the retention rate like for players?

With the development of broadband speeds and online technology many software companies are developing online platform to share your video analysis. With this relatively new method of delivery available does it give Performance Analysts the opportunity to use analysis differently?

Well before we look at it's application in sport lets learn something from the world of education. In the video below you will see a former Wall Street Analyst 'flip the learning process'. Basically he posts the lecture style lessons online and uses the face-to-face time for interaction and questions. Have a look at the video:

***VIDEO TO BE INSERTED***

**So how would this apply to sport?**



Mark Upton, Adelaide Football Club, explains on his [blog](#) how this applies in a sporting environment. Here is his account of flipping the learning process and applying some of Kahn's techniques.

*'Where possible we have used our online platform to deliver video examples and screen recordings of coaches explaining new concepts. Players login and view the content the day/night before (via mobile, tablet or computer). The next day we use the "face to face" meeting time for players to discuss the concepts amongst themselves and coaches (usually in smaller groups). This approach often makes this meeting time much shorter yet more valuable and interactive for the players. I feel learning and retention has improved due to this approach. Of course it is ideal to then apply these concepts in an on-field training activity as soon as possible. To finish off the process it can be valuable to then consolidate the learning even further within the next 48 hours. We sometimes do this by use of an online "pop quiz" where players will get a text message to login to our online platform and answer a question (sometimes accompanied by video) related to the new concept. Having to again process and problem solve further aids in understanding and retention.'*



I think the scope for development here is massive. Nobody is saying that all video analysis sessions should be put online, rather that certain forms of presentation are more suited to being delivered online, leaving much more time for real interaction in face-to-face meetings. Even if you feel this method would not apply to your entire team, perhaps the teams leaders/captains would benefit from this approach.

This is a really novel approach to using video within a team environment. While some players & managers will be reluctant to implement this we must remember that both the next crop of managers and more importantly players have grown up with technology - this is not new to them and we must adapt accordingly.

Make sure to read 'Flipping Fantastic' for a real world example of this approach.

## Performance Analysis – Tactics Team

This refers back to something in the interview I did with Mike Hall from the Worcester Warriors. Mike talked about having a tactics group and I wanted to discuss the idea here.

Basically a few players are chosen from the team (Rugby), in this case a few from the backs and a few from the forwards, to represent the players on a tactics panel. I think this is a fantastic idea for a number of reasons.

**1. Not every player understands tactics.** Perhaps all players should but we all know the players, in any sport, who just seem to get things done. Sometimes those players work best with their head clear of information. Players also may feel more comfortable in smaller groups, more willing to speak up and offer their opinions.

**2. Not every player likes responsibility.** Although all players should (and the top ones do) take responsibility, not all players like it. While you don't remove this burden completely you are shifting some of the game tactics duties to key players in different parts of the pitch.

**3. Too many cooks....** maybe only having a few players fully immersed in the tactics along with the management and staff means that more can be achieved in a shorter period of time. Leaving more time to practice what you have learnt.

**4. By having a few key decision makers on the pitch** means that the responsibility does not just lie with the captain or the manager. In any sport the possibility of picking up an injury is common, it's important to have a number of key decision makers on the pitch at all times.

**5. The players have a say!** Having a small group will probably invite more interaction between players and coaches and should lead to more formulated plan on how to play the game.

I know many teams will have an informal 'Tactics Team' but maybe you should make it more formal and announce to everyone who is on it and the function it is there to serve. Organise to have at least one tactics meeting with the panel between big games. You don't have to break out the video analysis each time maybe a whiteboard and some markers will help get the point across.

### Personal Experience

From personal experience I have seen teams who form these groups organically, where some players stand up and take ownership of a particular group or facet of the game. However, I wonder would it be better to form these on a more organised basis – almost like having captains looking after different facets of the game and becoming more of a liaison between coaches and the rest of the playing staff.

# Flipping Fantastic

## Guest Author – Ross Munro Williams



The traditional way of doing video analysis has usually been for the coach to sit their players down and go through the game footage with them and pin point areas where they could or should have done better. The focus of these meetings is usually focused around errors the players have made and because of this an intensely negative environment is usually created. Players dread these meetings as they are usually admonished and for the most part, the meeting is the first time the players have seen the game footage. This is why I prefer to flip.

### So what is flipped analysis?

Have you ever heard of it? Until recently I had not heard of it either. I am a big proponent of players knowing just as much as the coach and because of this I immediately saw the benefits of the flipped approach for knowledge transfer. Flipped analysis revolves around players doing post game analysing themselves just as much as the coaches usually do and as such they have a pretty clear idea of what happened in the game and form opinions that may be in contrast to that of the coaches. The flipped approach has the players take responsibility for their own analysis instead of relying on the coach to do it for them. The basic idea of this approach is that players do just as much analysis themselves if not more than the coaches.

The side I coach and analyse for are all university students, while the coaches are all full-time teachers and as such their time is limited and finding the time to get all players and coaches into the same venue at the same time is usually difficult. Lectures, tutorials and school sport ensure there is no time for one on one analyses, nor in depth team analysis. This is where Dartfish TV comes in.



## Online Sharing

Dartfish TV is an online video analysis sharing platform where the game and individual clips are uploaded together with the game tags. (Tags is a term referred to when a moment in the game has been 'tagged' eg: a tackle will have a tackle tag) Once the game has been uploaded the players and coaches are able to log into a secure page where the videos are private for invited team members only. Once online, players and coaches can view the game as a whole or look at the various tags in the game. Players and coaches can quickly find and view the clips they desire to see, for example a player can view all his contributions in a particular game, or over a certain amount of games, while the coaches can view the set pieces, breakdowns, set piece moves, tries scored and conceded as well as anything else that has been tagged or that is relevant to the game or the team. By uploading the game we have taken out the need for players to give in external hard drives or flash drives so they could watch the game as well as that players can now jump to relevant sections of the game they wanted to view instead of trying to manually find the right place which is time consuming and inefficient.

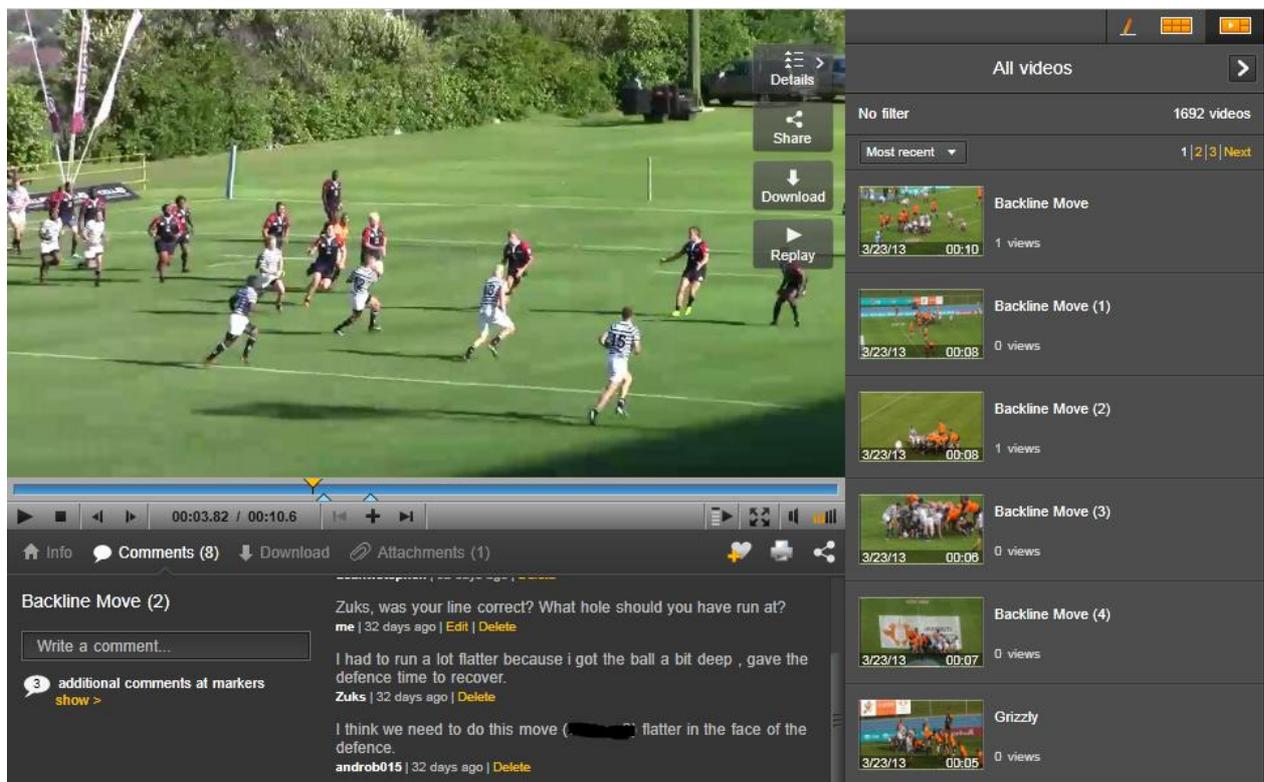
The screenshot shows the Dartfish TV interface for a player named 'Danie'. The top navigation bar includes tabs for 'All videos', 'Attack', 'Defence', 'Player', 'Key Performance Indicators', 'Attack Analysis', 'Set Piece', and 'Breakdown'. The 'Player' tab is active, showing a 'Videos' section with a 'Share' button. Below this, there are filters for 'No filter' and '174 videos'. A 'Filter videos' sidebar on the right includes a search bar and a list of categories: 'Keywords', 'Date', 'Half', 'Key Performance Indicators' (with sub-items like 'Box Kick', 'Clearance Kick', etc.), 'Kicking Result', 'Match', and 'Opposition'. The main content area displays a grid of 16 video clips, each with a thumbnail, a date of '3/22/13', a duration, and a title such as 'Box Kick', 'Clearance Kick (1)', 'General Play Kick (3)', 'Handling Error (4)', 'Negative Ball Carry (1)', 'Neutral Ball Carry (3)', 'Offload', 'Pass (2)', 'Pass (3)', 'Pass (4)', 'Pass (7)', and 'Pass (9)'. Each clip also shows '0 views' and a play button icon.

## Flipped Approach

This is my first year trying the flipped approach after having done the traditional approach for four years and from what I have seen thus far it is highly encouraging. The way we approach the video analysis sessions now is to have the video session later in the week allowing players a chance to view the videos and discuss, analyse and think about their opinions about what occurred during the game, and what they could have done better and more importantly what they did well, before the coach even has a chance to give his views of what occurred in the game.

The success of this approach was clearly shown in the viewing statistics of the clips where 2000 views were recorded after just two games. This phenomenal viewing statistic indicates that this approach was a big hit with the players and the coaches as they could now view the game at their own leisure at home or at university and as often as they wanted.

The great benefit of using Dartfish TV is that each clip can be commented on by the coaches and players alike and this creates a great discussion and a learning point for the players and coaches. I began the dialog for the second game uploaded by asking open ended questions and the players had to discuss the question about the clip concerned. I focussed on the backline moves as well as the forward phase play executions and from the dialog the players engaged in they were usually 100% correct in their observations and even came up with a few observations I had missed. That is the benefit of the flipped approach. The other way the coaches engaged with the players was for them to give the players tips and where they should have done something better. The set pieces were the main focal point for this type of dialog.



The image shows a screenshot of a video player interface. The main video area displays a rugby match in progress on a green field. The player's name 'Backline Move (2)' is visible in the top left of the video area. The video player controls at the bottom show the current time as 00:03.82 out of a total duration of 00:10.6. Below the video player, there is a comments section with a text input field and a list of comments. The comments are from users 'me' and 'Zuks', discussing the player's performance. To the right of the video player, there is a sidebar with a list of related videos, all titled 'Backline Move' followed by a number in parentheses, with view counts and upload dates.

## Player Engagement

A great feature of Dartfish TV is that each player can download the clips they desire or the entire game onto their computers and make a compilation of the various aspects of the game they would like to view or study over an extended period of time. For example a prop could download every scrum throughout the year and check his progress and learn from his mistakes and by the end of the year he can do a season review of his performance at the scrum. This is entirely up to each player and they can do as much or as little as they want, but the most important factor of this is that it is available should they wish to further their career or performances.

There have been challenges to this approach however as internet connectivity, access and speed is a problem where monopolies and company inefficiencies drive up the costs of internet in South Africa so many cannot afford it at home, while the speeds remain exceedingly slow – a 5mb line speed is highly unusual as most homes are throttled to lower speeds during the day. At the same time most players have an internet cap either at home or at the University (3GB cap) and this limits the amount of time they are able to spend online looking at the game footage. The only alternative is for players to frequent an internet café where speeds and reliability remain constant. However we have full time students and this impacts the amount of funds they have available or are willing to spend on internet, while going to an internet café is also inconvenient.

The flipped approach to coaching is a fantastic tool in any coaches' arsenal, however one thing that must be remembered is that it is highly time consuming and it requires a full time video analyst or a coach who does not mind giving up large portions of his/her week in front of the computer. The players themselves have to be committed to regularly going online and looking at the clips and to monitor this, the coach has got to be proactive and keep their finger on the pulse ensuring the players are actively involved in the coaching process. It is not an easy transition allowing players to analyse the games and come up with alternative opinions to what the coach thinks, but in my view there can be nothing better than having your entire team think like a coach on and off the field.

By introducing this approach to the team we, as coaches are hopeful the players take the time out of their busy student lives to actually look at the game with the astute eye of a coach, but with the benefit of actually being in amongst the action. With this type of in-depth analysis our players theoretically should improve tremendously throughout the year and with the correct guidance they will hopefully become better students of the game and think more clearly on the field to make better decisions.

To further this type of coaching in South Africa, I remain hopeful that internet speeds and uncapped availability becomes readily available in the next few years so that this approach can be extended to the majority of the sports teams as I firmly believe that this way of coaching has no peer.

*Ross is an enthusiastic coach keen on learning, debating and studying all about how we coach Rugby. He is currently the UCT u20 Technical and Skills coach during the Varsity Cup. He also runs his own private coaching business, Ross Rugby where the focus is firmly on skills coaching.*

Contact him: [ross@rossrugby.co.za](mailto:ross@rossrugby.co.za)

Find him: [www.rossrugby.co.za](http://www.rossrugby.co.za)

Follow him: [@RossRugby](https://twitter.com/RossRugby)

# When Will Coaching Befriend Video Analysis

Guest Blog Post by Karl O'Shaughnessy

## All Coaches Are Analysts



I always like to start any general discussions with colleagues about Sports Analysis by declaring that I am coach first and an analyst second. But that really isn't true. If you are a coach, in the truest sense of the word, then by extension you should also be an analyst. After all, a coach who isn't analysing performance really isn't a coach at all. Certainly, the last time I checked, analysis was part of the job description for any coach worth his/her salt.

As a coach, whether working at grassroots football, elite club or international level, I've always spent time analysing my team's performances through the years. During these 11 or so years the methods have certainly evolved - from verbal analysis with coaches in the early days, to pen & pad hand notation statistical data, computer generated stats to video

analysis in more recent years.

In the most recent past, I've utilised video analysis to enhance and work alongside my coaching ability. I was very fortunate to be able to learn many of the soft skills needed for the work from an excellent tutor, Rob Carroll. Rob's guidance allowed me to understand analysis software & video manipulation which in turn allowed for the exploration of other areas of my coaching that were previously un-explored – notably the simultaneous analysis of both player and coach in training situations.

## Video Training & Matches



That has been the key benefit of video analysis for me. It has provided an opportunity to help players see mistakes and learn from them while allowing scope for self-criticism of my own coaching. This is the area of video analysis that I am finding more and more beneficial in recent years; the analysis of training sessions as opposed to games,

particularly as I often worked with elite youth female goalkeepers in small groups.

For example, in a game that any analyst may film, our goalkeepers might have very little to do and the subsequent analysis of the game can often provide little and on occasion nothing at all for discussion – in training however, you are guaranteed a specific number of repetitions of goalkeeping skills, be that handling, dealing with crosses, positioning etc.

Each sequence of video provides an opportunity to analyse key movements in great detail which can (but not always) get over looked during a session where the coach is dealing with serving balls to players etc. Invariably with younger players there will always be areas for improvement and this process captures these moments in the safe environment of the training field.

## Self Analysis



The additional bonus to this is that I can analyse my own coaching style, skill & ability via the video footage. I handle training analysis myself mostly because it's different than a game situation – its development focused i.e. mistakes are encouraged. I try to position the camera to capture both the player actions and coaching delivery. Depending on the activity, it's not always possible to do this but in general it allows me to learn more about the type of activity I'm providing for my players and if it meets or exceeds their needs.

I'm not ashamed to say that I've been startled at some of my own personal footage from a coaching perspective. There's a simple reason for this and it's something every single coach is affected by whether they chose to believe it or not. I often use the analogy of coaching being like passing a driving test to describe it. Bad habits creep into our coaching much like bad habits creep into our driving in the weeks that pass following completion of our driver's exam. There's no doubt that video analysis of my coaching has helped me keep those habits in check and improve those areas of my coaching that may have slipped otherwise. These can only have positive outcomes for my players.

## Analysis in Coach Education



It's an area I believe firmly isn't utilised enough. Coach development can undoubtedly benefit greatly from the use of video analysis. It should be an integral part of any elite coaching course. From my personal coach education experience, analysis is often introduced from a player improvement point of view (which it certainly can be) but rarely with the idea of how can help develop the coach. The learning potential from this, in my opinion, is too important to be ignored.

In essence, does it truly make sense to analyse a game in great detail and simply assume the coaching is adequate to correct the identified errors in play? For me, it's logical to review, analyse and evaluate your work in an effort to maintain standards and indeed kick on to higher targets.

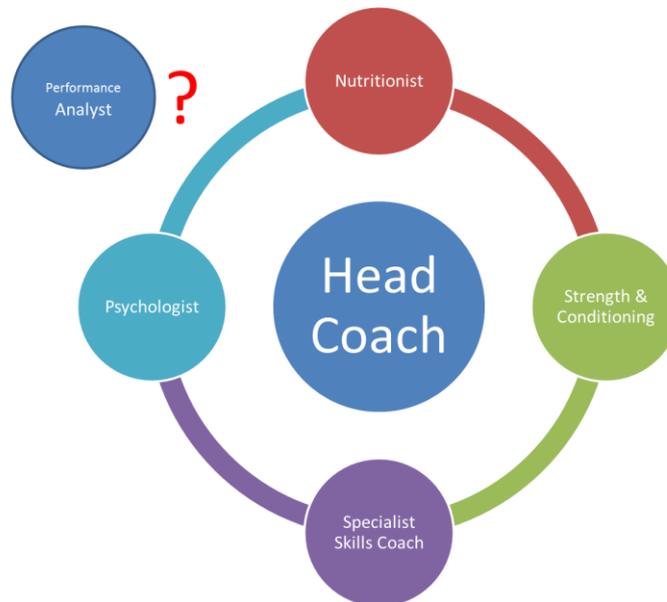
Why would any coach or educator want to ignore a simple cost effective tool that could help ensure you reach your potential as a coach and in turn your players potential?

I'm extremely passionate and if truth be told a little worried about the future of coach development. The 'nod & wink' culture in coaching is stifling the game. Only when the same care, attention and objective analysis is given to coach development as other areas in Sport can we ultimately reach our peak and make exponential improvements to the game.

There is no doubt in my mind that Video Analysis could and should play a key role in achieving this.

*Karl O'Shaughnessy is a UEFA Qualified Coach & Sports Professional. Karl is current Assistant Coach with 2012 FAI Women's Cup Winners Raheny United in the Women's National League and was previously Republic of Ireland U16/U17 Women's National Team Goalkeeping Coach from 2009 - 2012. Karl's website is <http://www.karloshaughnessy.com> and can be found on Twitter at <http://twitter.com/OShaughnessyK>*

## Should All Coaches Be Analysts?



As a practicing Performance Analyst I have always found that there is something peculiar about the role. Most other sports science personnel such as S&C, Psychology, and Nutritionists are invariably left to their own devices. These practitioners, while consulting with the Head Coach or Manager, often present their plans, goals and findings directly to the athletes and not through the coaches. In my experience Performance Analysts don't have the same level of interaction with players. The job is more of an interpreter, they act as the eyes and ears for the coaches, pass the information onto them who in turn deal with the athletes directly. This is somewhat understandable, while the other sports science personnel need to have a deep understanding of the physical & emotional demands of the sport the minutiae of the technical and tactical elements are something they do not need to concern themselves with.

This often means their skills are easier to transfer from sport to sport. The principles of what they practice remains the same, they are simply applying their skills under a new set of sports specific demands. The analyst on the other hand must understand the coach's philosophy, the game plan and both the technical & tactical requirements of the sport. This sports specific understanding is much harder to transfer.

The role of an analyst often involves more interaction with the coaches than the athletes. In a recent study on the role of Performance Analysts within Elite Football 72.9% of respondents said they did not lead the feedback to players (Wright et al., 2013). This is not something I have found with the other sports science disciplines. For an analyst to have a similar working relationship (as other sports science disciplines) with the athletes, they would need to be a coaching expert in that sport, understand the philosophy of the coach so they are not sending mixed messages and they must possess all the technical expertise required to fill the role of an analyst. If you are such a skilled coach it is more likely that you would be applying your skills as a coach and not an analyst.



more technologically able coaches enter the frame, I believe we will see a natural progression for them to collect video and data themselves. This is not necessarily a bad thing and I think it's something that should be embraced rather than feared by analysts. There is always an element of Chinese whispers when you have interpreters and perhaps with the performance analysts mostly removed from this step it will allow greater coaching to take place.

## PA on Coaching Courses



This need for coaches to be analysts themselves is also evidenced in the number of National Governing Bodies who are now including compulsory elements of technique and match analysis in their coaching framework. Personally I have been involved in the development of the analysis modules on some the UEFA Pro License courses (FAI & IFA). Despite many of these coaches having access to Performance Analysts they do find it beneficial to both understand the

analysis process and be able to perform some of the tasks as they take more ownership of the process.

There are some great examples of this where I have seen specialist skills coaches within team sports take full responsibility for their own analysis. These coaches do not rely on the services of the performance analysts and see much greater value in collecting and tagging the footage themselves. These coaches do not require the services of the analyst in either the collection or feedback processes, preferring to deal directly with their athletes. For me this is a prime example where removing the interpreter could improve the analysis and coaching process rather than hinder it.

The points mentioned about collecting video and data are certainly true for the video parts of the Analysis and Visualization steps. Coaches can and are taking much greater responsibility in terms of the technical skills needed to perform these functions. Where I think Analysts add critically important value is when it comes to the Management of both data and video, especially in terms of the technical requirements involved in storing and categorising vast amounts of video (online & offline). Perhaps more importantly, managing the huge quantities of data now being produced, either manually created by performance analysis software or by other devices such as SRM and GPS, requires some very specialist skills. These skills are not something coaches will (or should) know and therefore require a Performance Analyst to be involved.

When it comes to analysing data (statistically) and visualizing data (using Excel or Business Intelligence tools), this is where I see Performance Analysts adding great value. These skillsets require a lot of training and the sheer width and depth of data now being produced requires a very particular set of skills to make the most of it all.

To answer my initial question – should all coaches be analysts? My answer is Yes & No. Coaches should be willing to take on more ownership of the analysis process, certainly in

those first few steps of collecting and categorising. I believe this would add greatly to the coaching process, especially to the quality of data collected. In this regard the Performance Analyst should merely act as a facilitator and apply their skills higher up the chain. As the analysis gets more in-depth there are obvious time constraints but that does not mean the coach should step back from this process entirely. In summary I believe that large parts of the traditional job of a Video Analysts will be consumed by the coaches of the future. The Performance Analyst of the future will be more inclined to deal with Big Data and all the statistical techniques and visualization skills required to gain an edge.

## **References;**

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Wright, C., Atkins, S., Jones, B. and Todd, J. (2013). The role of performance analysts within the coaching process: Performance Analysts Survey 'The role of performance analysts in elite football club settings.' *International Journal of Performance Analysis in Sport* 2013, 13, 240-261.

# An Experts Guide to Performance Analysis E-book.

## Chapter 3 – Working as a Performance Analyst

I have always thought it was important to get the perspective of analysts working in the field and getting as wide a variety of views as possible. This chapter is a collection of views from analysts working in many different fields. Most of the analysts have moved on from their positions at the time, but the advice and details they outline are still applicable today. Thanks to those who shared their story.

1. Diary of an Analyst – Lee Dunn
2. Diary of an Analyst – Andy Boles
3. Diary of an Analyst – Damon Edmonds
4. Specialist with a Specialism – Andy Elleray
5. Life as a Performance Analysis Intern – Anonymous
6. Becoming a Freelance Analyst
7. Setting up as a Freelance Analyst – David Taylor
8. Being a Freelance Analyst, 1 year on – David Taylor

# Performance Analyst Diary

## Diary of a Performance Analyst - Lee Dunn, Bristol Rovers

### Match Day



A typical match day will involve showing players any clips they want to review during the pre-match match build up, for example the goalkeeper may want to see the opposition's penalty kicks during the season.

My primary responsibility during a match day is to capture the wide angle match footage for our post match analysis and provide live analysis. The live analysis is fairly simple, just key stats from the game e.g number of crosses/shots/ attacking set plays. At both Half time and Full time I create a stats sheet which is presented to the management, along with any key incidents they wish to review.

### Post Match Analysis

The post-match analysis is probably the most time consuming part of the week. This is usually carried out on the eve of a match day and the day after the match day using Dartfish video analysis software. This process can take anything up to 6 hours depending on the game. The post-match analysis provides us with technical & tactical statistics for both teams and individual players. Once the coding has been completed the raw data is exported to our pre-defined match report templates.



## Example of Stats from Match Report

I then review the technical match report for any tendencies or key themes that relate to our pre match analysis and game plan and review the video for further analysis. The post-match report is then distributed to the management team so they have the statistical feedback from the match. After discussions with the management team, I will then put together a presentation for early mid-week to review with the players & management.

### Mid-week



During the early part of the week my time will be spent finalising and presenting our post-match debrief to the team. Individual players will also want to see certain aspects of the game on an individual basis.

The mid-week period is essential in terms of ad hoc jobs. For example coding opposition matches, collating video of goals scored within the league, organising match footage and dealing with other clubs DVD requests. This time is also used to look at our in house trend analysis to see if any trends are developing with regards to both individual player & team performance.

Towards the middle/end of the week my attention turns to the forthcoming opponent. Depending on the footage availability this may require coding games during the week or reviewing games I have already coded on the opposition. In tandem with the management & scouting reports I start to pick out key themes that we would like to present to the team. We try to summarise their key themes into a 10 minute package, therefore a lot of time is spent selecting the most relevant clips that paint the best picture of the forthcoming opponent. I also provide the management team with key statistical information on the opponents where I feel necessary, for example if a team scores a lot of goals from set plays etc. A DVD is also given to the management containing all the opponents goals scored and goals against.

Once this process is complete the management will present the information during our pre match meeting. The game plan will be outlined. I will then adjust my coding template according to our game plan in preparation for the forthcoming fixture.

## Andy Boles, Head of Academy Sport Science at Hamilton Academical's F.C



I'm Andy Boles and I'm the Head of Academy Sport Science at Hamilton Academicals F.C., which up until recently, has generally meant that I'm involved in fitness testing, nutrition support and physical training of all academy players. Before undertaking this project, I had almost no experience of PA – neither my B.Sc. (hons. In Physiology & Sport Science) or M.Sc. (in Strength & Conditioning) covered the subject. I was aware of the benefits of software that allowed basic tagging of events (my exposure was with Focus X2), however there simply was no budget to invest, and an unfortunately common situation in Scottish football.

Here is my experience of setting up a Performance Analysis system at my club.

### The First Step: Securing Software & Hardware



An open-source sports video analysis tool called LongoMatch (<http://www.longomatch.ylatuya.es/index.php>) was recently brought to my attention, meaning that I could have some of the benefits of video analysis without the cost.

Hardware wasn't an issue as the club already had a digital camcorder and I had tripod stands from an electronic timing gate system I use to test players speed. A decent camcorder and tripod are essential to capture quality clips, ensuring the statistical data I capture later in analysis is accurate. Also important in this stage is the consideration of vantage point, which is discussed in other posts on this site. I am fortunate enough that the majority of our under 19s games are played in mini stadiums which at times can be little more than glorified wooden huts! Nonetheless, I am usually able to get an elevated position on the halfway line to film.

### Step two: What do we want to know?



This may seem an obvious step to some, but in order to get a good system in place, you need to choose what you want to measure carefully before you start. The initial temptation to measure everything doesn't last long, when you realise how long it's going to take one person to do!!

To start off, I had a consultation meeting with different coaches to discuss which key events they would like to be tagged with the aim of allowing the coach to review key parts of the game at the click of button, instead of searching to find them on one big video file. The tags we decided to start with were:

### Our Team:

### Opponents Team:

- |  |   |
|--|---|
| •Goals Scored                                | •Goals Scored                               |
| •Shots On Goal                               | •Shots On Goal                              |
| •Free Kicks in Opposition Half               | •Free kicks in our half (i.e. us defending) |
| •Corners                                     | •Corners                                    |
| •Crosses into the box                        | •Crosses into the box                       |
| •Won Possession (& Kept for at least 1 pass) | •Lost Possession (e.g. bad pass/ tackled)   |
| •Throw Ins                                   | •Throw Ins                                  |

Before I started to tag the events in a game, a list of definitions was drawn up for each of the above events, giving examples of when a play/event would or would not be included in analysis. For example, we agreed that an over-hit through pass that reached the opponents goalkeeper would not be counted as a Shot on Goal. Likewise if a defender under pressure cleared the ball and it reached an opponent without trying to pick out a specific teammate, it would not be counted as Lost Possession.

So, now I was able to film a game, put it in my laptop and tag major events. The Coaches could watch the full game or focus on these key events quickly to look for things that worked well or recurring problems that need to be fixed.

### **Step three: Taking detailed data from the game (aka the boring bit)**



Having some decent experience in storing and analysing data using various spreadsheets, I thought we could do more than just bookmark key events for coaches to review performance. I set about creating a spreadsheet that could easily display team and individual performance data such as pass accuracy. I chose to look at:

- Pass success rate (split into 0-10m, 10-20m and 20m+)
- Crosses (accurate/non accurate)
- Shots on/off Target
- Headers Won/Lost
- Tackles
- Blocks/Interceptions
- Fouls Committed and
- Red/Yellow Cards.

Firstly, I created a basic sheet to capture the data (shown below). Next, I watched the full game again, noting a tally mark every time each player made each action. A separate sheet was used for 1<sup>st</sup> half and 2<sup>nd</sup> half to allow comparisons. Again, a definitions sheet was also drawn up too.



## Stage four: Presenting & Using Data

This is an area previously covered by *thevideoanalyst* so I don't want to go into much detail. Needless to say, you must have a trusting relationship with coaching staff and with the players in order for information to be accepted. It is also extremely important to be objective!! Don't try to favour teams or players!!

 <span style="border: 1px solid black; padding: 2px;">Performance Analysis Database - Under 19s</span>																					
Name	Date of Birth	Position	Games Started	Sub Apps	Unused Sub	Total Time on Pitch	Ave Min / Game	Average Match Rating	Passing			Shots on Goal			Headers		Blocks /			Cards	
									Ave / 90min	% ✓	Assists	Total	% on Target	Goals	Total	% Won	Tackles	Interceptions	Fouls	Yellow	Red
1			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
2			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
3			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
4			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
5			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
6			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
7			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
8			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
9			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
10			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
11			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
12			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
13			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
14			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
15			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
16			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
17			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
18			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
19			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
20			0	0	0	0	0	N/A	0	N/A	0	0	N/A	0	0	N/A	0	0	0	0	0
Team																					

## Stage five: The next step...

The next step for myself is to catalogue performance for each player throughout a season, analysing statistics for many games at a time. I've started building the excel database, with pics below. The first picture is of all the players in the teams averages throughout the season. Each player will have a tab at the bottom of that spreadsheet with their performance data in each game throughout the season.



Contact Andy on Twitter: ([@Andy\\_B123](#)).

# Diary of a Performance Analyst - Damon Edmonds

## Warringah Rugby Club and NSW Waratahs Performance Analysis



**Positions:** Video Analyst for Warringah Rugby Club (1st Grade and Reserve grade) and Performance Analyst Assistant for NSW Waratahs

**Technology:** Sportscode GB+ at Warringah Rugby. Dartfish on ipod touch. Mac laptops. Verusco and Fairplay at NSW Waratahs.

### Warringah Rugby Club

#### Match Day

My tasks on match day have evolved over the last three years with the club. Initially, I would code all home games live with a direct feed from the club cameraman and code all away games post-match with a dvd. I now get a direct feed from all home and away matches for the best quality possible as well as saving time. (No longer need to wait around for copies of dvd)

This season has been the most interesting and innovative season I have had with the club. I am now involved with two grades which has given me more time to try a few new things. My day will now consist of arriving early to set up the mac to get the direct capture and then set up another laptop with screen share to watch, replay and review the captured game from the cameraman. (The coaches, myself and the second laptop will be located more than 10 metres away with the wireless feed) While the coaches are able to instantly replay particular instances I will code predetermined tasks using my ipod touch to give coaches up to date stats throughout the matches.

#### Post Match

I will create a team code and an individual code for first grade and a team code for reserve grade. This will generally take me half a day to code and fix any errors or extend play on certain instances. It has taken us the three years to create the right coding windows but I am quite familiar with them now. The individual coding is much more time consuming but this has become the bigger focus for players.

#### Training

We have only recently started filming some sections of training and this will generally involve a screen sharing replay system. I will record a particular exercise and send the replay through my computer with the screen share.

**NSW Waratahs**



(I was only involved on match day this season with the Waratahs but hopefully I will have more involvement with training and filming next season.)

**Match Day**

Myself and another assistant will code all matches live and provide coaches and the Performance Analyst with statistical data throughout the match. I will also set up a laptop to capture another angle from the broadcasting truck for home matches only.

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Damon is now a Performance Analyst at Melbourne Rebels

# Specialist within a Specialism: The Goalkeeping Analyst

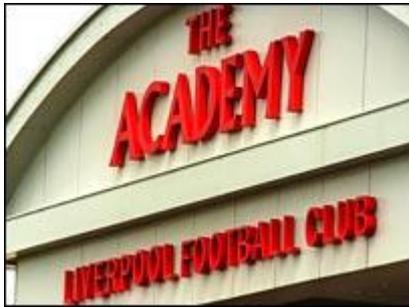
## Andy Elleray



When looking to embark on a work placement as part of my studies for my Master's Degree in Sports Coaching, I sat down and thought to myself, 'how could I perform both my role as a Performance Analyst and that of a Goalkeeping Coach?'

I decided why not try and combine both of these roles and create a brand new spin on analysis and look to dissect the nowadays crucial part the goalkeeper plays within a football team.

## Liverpool Academy



I luckily found a more than appropriate setting in the form of Liverpool Football Club's prestigious Academy in Kirkby who were willing to let me into their setup and investigate how by looking at the goalkeeper's development from an analysis and coaching perspective I might be able to add something new and unique to their current infrastructure.

After initially approaching John Achterberg who is currently First Team Goalkeeping Coach about the possibility of looking to implement some of my ideas, I found that they were extremely receptive and after meeting with him and Mark Morris, Reserve and Academy Goalkeeping Coach the placement was agreed.

## GK Analysis

What I was looking to investigate was how analysis can help aid the coaching process by filming training sessions and matches from solely a goalkeeper's perspective and seeing how by reflecting on the technical and tactical aspects of goalkeeping, I could explore ways to provide feedback. This feedback took a few different forms;



- Comparison clips between actual and desired performance and actions (using the Kinovea editing software),
- Compilation DVDs that showed how what was being worked on in training reflected scenarios in a match and vice-versa,
- Statistical analysis on distribution that was created using my system (see article: [GK distribution system](#)) and
- Sessions with myself, the coach and selected goalkeepers to make suggestions and perform Q & As.

Along with the coaches we prepared footage that would enable us to build up a portfolio for each goalkeeper worked with. The focus was mainly on the 2 Under 18 and 1 Under 16 goalkeeper's but during my time there I managed to get match and training footage of every goalkeeper from Under 10s to Reserve team.

## Seeing a match from a Goalkeepers perspective



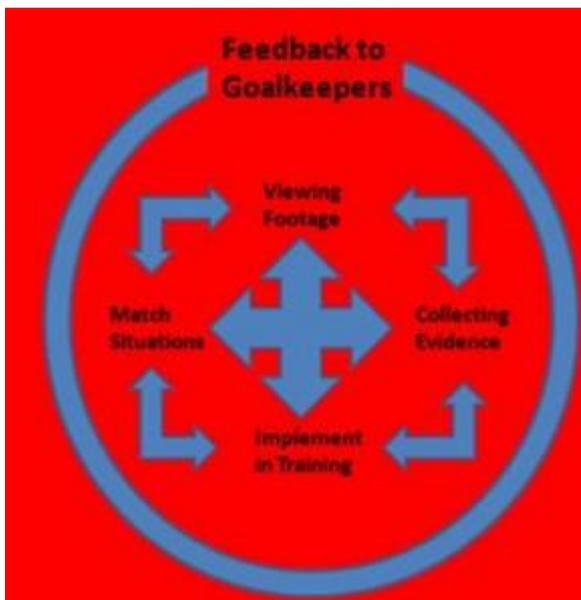
A main idea that I was keen to experiment with was filming all matches from behind the goal to get the goalkeeper's view of the game. This was to enable a neglected area of analysis to open up in the form of positioning without the ball, angles of support, actions without the ball, flight and trajectory of the ball and general play when in direct involvement. The reasoning for this view is that the traditional 'TV' view missed out so much action involving the goalkeeper's. I'm not certain of percentages etc but the

goalkeeper only directly touches or is directly involved in play a limited amount of time in a match so looking at the above areas allowed for a more holistic evaluation of goalkeeping performance.

The mentioned areas of neglect seemed to have a direct correlation with their direct involvement, for example if their starting position was too deep this would ultimately affect their ability to deal with a through ball.

The response to this from the coaches and goalkeeper's was positive and during the feedback process and we all were able to see the benefit of having this view as it brought up additional discussion points.

## The Feedback Loop



The shown model was the type of process we were working on with continual feedback being given and every point of contact being inter-linked so everything we did was flexible.

In terms of the footage I took during training, it was taken from different views and focused on an in-depth look into how effective current techniques were. From this we identified 1 main area that we were to work on through the 3 weeks I was there. The 3 focus goalkeeper's actually had very different areas that they needed to improve upon so this gave scope to investigate ways in which the software and footage could isolate different goalkeeping actions. Although all areas were looked at it

became apparent from consultation with the coaches and footage that working on this 1 area would be more beneficial rather than looking to spread my time more thinly.

## Conclusion

All in all this fresh look at a specialist position from an analytical perspective has received very positive reviews and has given me the opportunity to experiment and deploy some of my ideas within the goalkeeping and analysis departments.

I know the whole ethos of what I've been doing might not be fully seen because there's no videos or presentations but hopefully this article will give an insight into possibly one of the future progressions of analysis, that of a specialist person looking into one position of a sports team or a specific topic within a sport.

Who knows what may come of this placement and the evidence it has produced, but the chance to explore the position of the goalkeeper in great detail has only increased my hunger to continue to discover how various analysis procedures can aid the development of goalkeeper's at all levels of the game.

**About Andy:** Andy Elleray is a self-confessed goalkeeping fanatic having worked at all levels of football – within coaching and performance analysis. He holds an honours degree in Sports Science and a Master's degree in Sports Coaching, he is a UEFA qualified coach and holds the highest accreditation as a performance analyst through ISPAS (The International Society of Performance Analysis of Sport).

Andy has worked at a variety of different professional clubs and within some highly esteemed academies. Assisting top level coaches and creating numerous goalkeeper coaching support and coaching systems, he also conducts goalkeeping research and has previously spoken at high profile goalkeeping conferences and the World Analysis Congress where his research, ideas and approach have been well received.

Andy has also written a book, *Scientific Approaches to Goalkeeping in Football*, which you can read more about in Chapter 4 of this EBook.

## Life as a Performance Analysis Intern

*I received an email from somebody I know through this site. The person involved wanted to remain anonymous and didn't want to name (and possibly shame) the clubs involved. Below are his thoughts on working as an intern in the Performance Analysis industry. I think there are some excellent points made here, especially about the learning that goes on in university as against 'real life'. I think this adds significantly to the intern debate so enjoy....*

### Working as an Intern



Having worked for experience or as an intern at four different clubs, and ending up in a full-time position, I feel like I should contribute to this debate. It seems to me that the main issue being discussed is simply the question of whether interns should be paid as a standard, however I think it does come down to the skill set and level of contribution that you can provide. If you are on a four year 'sandwich' degree involving a placement year for experience, then this added year is often unpaid, should this year be viewed any differently if it is following a completed three year course?

### First Role



Taking my own experience as an example...whilst I was at University I gained experience with a local BSP (Blue Square Premier) club, where two of us provided 'snapshots of sport science' for them to showcase the type of services they could utilise if they turned professional in the future. This self-driven module helped me to get onto an unpaid internship at a more professional BSP club after finishing my BSc degree, whilst I was studying for my MSc. I had also interviewed at a Championship club however was told that I was

'overqualified' and that the general role seemed to involve putting weights on bars and mixing supplements. Although it was a lower league the BSP opportunity seemed far better either way. This BSP internship was a fair commute away & long hours with very little professional development from the clubs side, however I still feel that it was beneficial in learning about the environment that you have to work in for example;

- Building relationships with coaches and players,
- Pressure of working to deadlines and
- Dealing with technical issues associated with the role.

### The Downside

The downside was that apart from the odd bit of guidance from an ex-analyst then working as a part-time coach, there was very little effort from the club in order to develop my skills, and it appeared as though I had been brought in just to film, clip and produce dvds. I was

following this process most evenings at home and at weekends and regularly covered 6+ games a week. As the season went on I drove my own development by going to courses & conferences and generally attempting to pick the brains of more experienced analysts at other clubs. At times I felt as though there was the potential to have a real impact however I didn't have the knowledge or receptive environment around me to really contribute. It was only when the youth department camera was broken by a member of staff using it as target practice (!), and an inadequate replacement provided that I was able to really focus on the First Team work and started to open a few eyes to how useful an analyst can be.

## **Moving On - Better Environment**

At the end of that season there was no job available, and so I got in touch with a local League 2 side where I organised paid part-time work on a match by match basis. The attitude from the coaches was receptive, open and creative, and learning from staff with previous analytical experience I found that I developed my skill set more in 6 weeks here than in the previous season. Despite being a relatively small club, after a few weeks working with them I was offered a bit more money to increase my hours, and was told the aim was to gradually increase this until potentially I could become full-time. Before these developments took place I was offered a paid internship at a Premier League club and left on good terms, however I believe they have now set up an intern based analysis department giving responsibility to a team of students. Low money yes, but a fantastic place to learn.

## **Premier League**



Working last season in the Premier League was clearly different to my previous experiences in football, however the basic qualities that I had started to develop helped me to gradually contribute more throughout the year. Learning from and being guided by more experienced analysts I was able to put the work ethic developed at the BSP club to good effect, and I built on the type of work I had started to produce towards the latter end of that season, and at the League 2 club. I gradually increased my skill set throughout the year eventually leading to a full-

time role assisting the head analysts moving forward, with a lot more responsibility. I do however believe that if I did not have a bit of experience under my belt prior to starting off at the Premier League club, I would not be in a full-time position now. The football environment is unique, and besides helping to open the door to these internships my degrees are now largely redundant. Coming out of University I feel that most students (myself included at the time) do not possess a large number of the requirements to work full-time in football, there's a hierarchy in football that has to be respected, learning when to speak and how to deal with people, managing expectations is a big one, if you have a manager standing over you saying he needs something done in an hour and you know your technology will take 2 hours, you have to be able to communicate this. Often this is with people that don't 100% understand the technology and may think you are just slow. There's a pressure that comes from the authority and people around you, and if you have a faulty piece of technology and can't complete the task there and then this is stressful.

Therefore people shouldn't expect to gain a salary reflective of this. I believe that an internship high up the football pyramid should be paid, however the people getting into these positions are generally likely to have some prior experience either during or post University to get to the front of this very popular queue.

## You Need Experience



Working on expenses or a low wage at a BSP or League 2 club is a fantastic way to develop skills both personally and technically. Starting off at this level may not seem glamorous however these opportunities often place larger responsibility onto people who would sometimes simply be asked to put weights on

bars higher up the football pyramid. It is a long process, and you have to be very committed and aware of the risk of it being unsuccessful, however there really isn't much of an excuse these days to come out of University without a bit of self-organised experience under your belt.

Who would you expect to be more ready for the working world...someone coming out of a 3 year course with no experience, or someone who has gained experience on their course or by extending it with a 'sandwich year'? Whether this year comes during or after the University course it is unlikely to be paid, and ultimately in my opinion vital. Only after two years in the game do I feel like I can contribute enough to deserve a full-time wage, University is simply not enough.

# Setting up as a Freelance Analyst

Guest Blog Post - Written By David Taylor, Optimum Sports Analysis

## The trials and tribulations of setting up a freelance analysis business

My name is David Taylor and since opening a *Twitter* account ([@sports\\_analysis](#)) to represent my freelance performance analysis business, the questions I am most frequently asked are concerned, not with what we can offer, but with how we went about setting up and whether there is a market for such a business. The latter question I cannot yet answer but this piece I hope will go a way to answering the former.



In my second year of uni I had already decided that I wanted to be a sport performance analyst so naturally, upon leaving, I began to look for jobs matching this description. I soon realised that although I had a full seasons worth of experience working with a professional football club as

well as a first class honours degree this still didn't seem to entitle me to any form of paid job. The football club I had worked with had agreed to allow myself and a colleague to continue providing analysis for a further season, however this was going to be in a voluntary capacity. It was then that my colleague and I decided to set up our own freelance analysis business.

Initially we wrote to 14 local clubs that played at varying levels, some with analysis departments already others without a single analyst. We decided not to head these letters under a business name but instead as two individuals looking for an opening in the performance analysis world in the hope that they would want to offer us, as individuals, a contract with the club.

## Reality hit home



Around three weeks passed before we received a reply. It was from Southampton who politely stated that they recognised our skill set however were not currently looking to employ anyone and as a result would not be taking us up on our offer.

To date this is still the only reply that we have had!

Recently, the opportunity to discuss this matter with a HR representative of a professional football club was presented to me. In this discussion I was informed that, upon the date that graduates began to leave university the club had been inundated with letters, such as ours, and that the pile currently stood at head height! This is

despite the fact that they hadn't even advertised any positions.

## A kick up the backside

This gave us a kick up the backside and provided us with an opportunity to reflect. We knew that we had the ability so decided to alter the way that we were going to portray this.

### Change #1 – Creating an identity

From these discussions we firstly established a business name: *Optimum Sports Analysis*.

After an afternoon and evening spent brain storming for names we made a shortlist of around 5 that we were both completely happy with and passed these on to a graphic designer ([www.theothermattroberts.com](http://www.theothermattroberts.com)). In return we were provided with three early forms of logo to which the *Optimum* option was unanimously decided upon.



Since then we now have a confirmed logo and typeface (see above), we have had business cards produced, a letterhead template created and are in the middle of creating a website. On top of this we have bought an email address and a web domain ([optimumsportsanalysis.com](http://optimumsportsanalysis.com)). While we work on our new website we are currently located at [www.optimumsportsanalysis.blogspot.com](http://www.optimumsportsanalysis.blogspot.com)

### Change #2 – Channelling our target market



Something that was drummed into us at university is how currently, although it is slowly changing, the coaching system in this country is problematic in that the most knowledgeable coaches are at the elite rather than developmental level. This was something we wanted to implement in our business plan.

We also believe that by helping a team/individual who is earning thousands of pounds a week and who has everything that they have ever wanted, although may be more financially beneficial, may not be as rewarding as helping someone develop from grass roots or youth level. We have therefore turned our attention and the aim of our business

to providing analysis to individuals and teams from grass roots upwards as well as places of education such as universities, colleges, schools and sporting academies, acting in more of a player development role.

## Time and money



If I have learnt something through setting up this business it is that everything costs twice as much as you would expect and takes twice as long to complete.

As I hope you can imagine, being recent graduates meant that we had limited finances to invest in equipment. We were aware however that we would certainly need a computer, a camcorder and some analysis software. For this reason we have both found

alternative forms of employment to help contribute to this venture.

So far, with regards to equipment, we have invested in the following:

**HD camcorder:** This is not a professional model but more like one you would buy to take on holiday. However we did ensure that not only was it HD but that it has a built in hard disk drive (HDD) feature (so you don't have to change over tapes at half time!!) and plenty of spare batteries. Therefore it was not cheap!

**Software:** At this moment in time we are using the superb, and importantly free, *LongoMatch* software. However as our customer demands are becoming more intricate we are strongly thinking of utilising our *Dartish* student license option.

## The final word

With the new football season beginning as we speak and with schools returning from their summer holiday soon, we are entering a very busy and crucial time. Our attention will now be turning to the marketing side of the business, something that neither of us has done before and therefore will no doubt provide a steep learning curve. To give this a kick start and to enable customers to see what we can offer, we have decided to invite any new customers to try us for £20.

With the job opportunities at professional clubs few and far between, we hope that others realise, like we have, that there are plenty of other opportunities for providing analysis in places that your work and hard earned knowledge and passion will both prove perhaps more important and effective and will certainly be a lot more valued.

I hope this small insight may have helped in some way and I hope to follow up this article later in the year with how we have progressed and, no doubt, with other lessons learnt.

To be continued...

# Becoming a Freelance Performance Analyst

## Is there a business (living) in being a freelance performance analyst?

This is a question I get asked very often so I thought it would be a good idea to put some thoughts down on paper. The answer is; it depends on what type of living you want. Like starting any business it can be difficult. Making good contacts, coaches and teams trusting you and funding all the necessary tools are all barriers you will have to overcome. I certainly wouldn't advise anybody to jump head first, give up the day job and just go for it. It is definitely the type of business you can be building part-time until you feel you have enough contacts and experience to make the giant leap.

So here are some thoughts for you to consider:

### 1. Equipment



#### Laptop

At a minimum you will need a decent laptop. It can be difficult to distinguish between all the different specs & makes but probably the most important thing is the speed of the processor. The memory and the RAM are important but these can be solved easier than if the computers processor just isn't up to the job. If you are unsure how to check - Wikipedia is a great place to find out what the latest chip is and how it compares to others.

I will do a blog post specifically about laptops but 'Gaming' laptops usually have the best hardware.



#### Camera

You *really* don't need to start expensive here. I would be looking to spend around £300/€400. It is a good idea to think of some of the extra's you might need. For example it's a good idea to have a wide angle lens and a long lasting battery.

If you have the budget it is not a bad idea to invest in decent camera's, I'm just not sure its something you have to spend loads of money on straight away.



#### Projector

Again nothing fancy here, a bog standard projector will do the job just fine. You don't want to be relying on people supplying them for you, trust me on this, they can be temperamental pieces of equipment. Having the piece of mind that you have a guaranteed solution is well worth the investment. Don't forget a power extension cord.

Projector cables are notoriously short!



## Software

I know I have said many times that you can do basic analysis with 'free' software like i-Movie and Windows Movie Maker but if you are considering it as a job you will need to purchase specialist software. I am not going to recommend a software here but it is worth shopping around. Find out if the software can be rented on an annual basis, if cost is a real issue at the start this can be a great way to dip your toe in the water without investing fully. This will allow you fund the venture at a smaller level and see how the business goes.

Lastly, future proof your purchase; You may start out with a simple idea of the service you offer but think about what you might need in 2/3 years time. For example you might think you only want to analyse team sports now but further down the line athletics might become a possibility. The last thing you want to do is find you need to buy more software in the future.

Further Reading: [What Goes in a Video Analysts Kit Bag](#)

## 2. Service

Next you are going to need to decide what type of services you will offer. I would probably break this down into 2 categories; Hands Off, and Hands On. In any pricing structure I think it would be a good idea to have some sort of idea of what you would charge for each level.

**Hands Off;** This level of service requires little commitment from either you or the team. For



example a team sends you a DVD of their last match, you analyse it to their specifications you make a highlights DVD and send that back to the manager for them to go through with their team. As a guide I charge €150 for this type of service and it can work very well especially where travel distances are too great.

DVD, it is a good idea to try and sit down with the manager every now and again and see if there is more you can offer. Make sure you get paid in advance with this method, sometimes teams don't like what they see on the tape and some how it is the analysis that is the problem.

A couple of things to be wary of; it can be difficult to build a rapport with the manager or team as you are mainly communicating via

**Hands On;** This level of service requires the highest level of commitment. I would consider this as basically an outsourced Performance Analyst. It might still be on a part-time basis but you might cover some or all of the following;

- Video/analyse training sessions,
- Go to team meetings with players and management and

- Even do some live coding or videoing on match days.

The advantage of this method is you become part of the backroom staff and this will give you the best opportunity to show off the full gambit of your skills. What to charge? This is more difficult as you will have to factor in the level the team play, their likely budget and the various travel times involved. But if you take the base figure for analysing a game at around €150 you can always work from there.

One thing also worth considering here is enhancing your reputation. If the team or athlete is high profile it might well be worth taking the job on to cover costs at the start and trying to make more money from the other - lesser known teams, but don't be taken advantage of, if your skills are good enough make sure you charge an appropriate amount.

### 3. Extras



Can you offer more than being just a video analyst? Many teams, especially outside the major pro teams, see the value in performance analysis and sports science but one of the major reasons they often don't use it is because they don't have the expertise on staff.

It is well worth considering if you could potentially offer other 'sports science' services as part of the overall package. Fitness testing, heart-rate monitoring and general performance monitoring are all areas that contribute to performance and involve technology.

Although this technology will cost you money it is about sitting down and mapping out not just what your business might look like this year but what it might look like over the next 3 - 5 years. The use of technology in sport is only going to grow so why not be involved in as much of it as you can.

### Final Thoughts

I definitely think this is the type of business you can do in stages. A standard laptop, camera and projector will allow you start the process without investing huge sums of money at the start. They are always something you can upgrade as you make money. Video analysis software will probably constitute your biggest investment so make sure if it does a little more than what you need it to, it has to be something you can grow into over time.

My final piece of advice is to talk to people who are in the industry either as employed or freelance analysts. As the old Chinese proverb says: *"To know the road ahead, ask those coming back"*

## Being a Freelance Performance Analyst: Optimum Sports Analysis – 1 year on.

This is a follow up article written by David Taylor - Optimum Sports Analysis.



Since our last article for this website back in August 2011 a lot has changed. We soon realised that we needed to get back to working with software that we were both familiar with and could use effectively to get the results we wanted and this meant utilizing our Dartfish student license and purchasing the latest version of their TeamPro software. This software suits us as it is what we self-trained in at university however it is worth noting that the majority of performance analyst jobs that are advertised tend to require someone with experience in SportsCode.

We have also added to and altered many of our services to meet a wider range of customer needs. Included within this was allowing customers access to more individual parts of our services such as filming of performances or analysis only. We found that, in many cases clubs had access to one of these but not the other or perhaps only required their performance to be filmed and not analysed.

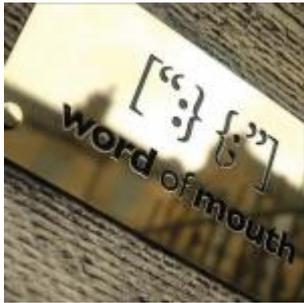
One of the most important things we have done however is got to know our equipment a lot more intricately. This has included everything from setting up our video camera correctly to studying the different ways video footage can be transferred onto DVDs and other media. This is an area that shouldn't be underestimated in terms of it's importance and time consumption.

### Marketing



After writing our last piece for this website our next step was to begin marketing our business. We initially decided to look into advertising through local papers and sport magazines however the prices that we were quoted were far greater than our budget allowed. We decided therefore to do the best we could using both our website and other social networking websites. However, despite attracting some interest this way, the majority of it was geographically too far afield. We then decided to send emails to local sports clubs promoting both our business and our 'Try us for £20' offer but, again, to no avail!

Determined not to give up, we decided that, as we both worked and had contacts within the sport sector through our other forms of employment and education, we would go back to the old fashioned way of marketing – word of mouth. This fortunately turned out to be a different story. By simply chatting to clubs/managers/coaches about our business they soon became interested in what we could offer them and how we could benefit their team. On numerous occasions, a member of the opposing team that we are analysing has even approached us and enquired into our services; normally ending in asking if they can have a copy of the match DVD! To date, marketing this way is still our most effective way and shouldn't be disregarded by anyone.



We still persist in using the internet as a form of marketing as it is economically efficient especially with regards to the amount of potential customers we can reach. One thing we are trying is uploading a video clip onto youtube of our selected highlight of the month. On one occasion this swiftly attracted around 1,000 views and made it onto the back page and website of a local newspaper – all free marketing. As a result of this continued effort, we are beginning to find that we are receiving more frequent customer interest through both our website and our Twitter account ([@sports\\_analysis](#)) and for this reason are looking into ways of making our online presence more understandable and accessible so that, not only do people stumble across our website more frequently, but that they also understand what we offer and how we can benefit them.

A couple of videos we have found particularly useful in this respect are:

- Ali Clabburn ([http://www.youtube.com/watch?feature=player\\_embedded&v=z9Edfkbxo2A](http://www.youtube.com/watch?feature=player_embedded&v=z9Edfkbxo2A)) talking about the challenges of setting up an online social business from a notice board in university halls, to a nationwide business.
- Matt Dobbin (<http://www.youtube.com/watch?v=JH1GBX4ohMw&feature=relmfu>) a Behavioural Economics expert giving an enthusiastic, revealing and entertaining overview of the subject.

Both of these videos have been pointed in our direction by our graphic designer come marketing consultant [theothermattroberts.com](http://theothermattroberts.com) who, as we speak, is working on an update to our online presence to solve some issues and implement some changes we want to make based on the findings from the videos and our combined and continued research.

## The Present

To date, as a business, we have only undertaken analysis on football but across a large variety of standards and developmental levels. We have also interestingly had several enquiries from hockey teams. With the seasons changing, we are now beginning to focus our attention on summer sports, specifically cricket and tennis, where the potential benefit from the use of analysis is vast. We are looking heavily into how we will have to adapt how we work for these different sports as even just simple things such as altering camera position can provide huge challenges.

We have also decided to continue with our Try us for £20 offer as not only does it attract a wider range of customers but it also provides us with a broader range of experience and shares the usefulness of analysis in sport to a larger audience; even if it doesn't always turn into a longer term booking. On top of this we added a dossier option to our list of services early this year and this is something that we wish to start putting more emphasis on promoting due to its potentially more lucrative properties.

## **An Honest Conclusion**



The last 10 months have been a great adventure that I would recommend to anyone and we are both thoroughly looking forward to the next 10 months. For financial reasons alone however, it is difficult personally for me to see working in this industry as a freelance ever becoming my full time job. Put quite simply, as a business we would not have survived if it was not for our alternative forms of employment. Our target market, generally

speaking, does not generate a huge income themselves and the clubs and individuals that do have expendable incomes, tend to have their own in-house analyst/analysis team.

For the future therefore I can look upon freelancing as an analyst as both a hugely enjoyable hobby and a very welcome addition to my main income and, alternatively, perhaps as a platform for gaining future employment in this very competitive and rapidly expanding industry.

David Taylor  
Optimum Sports Analysis  
[www.optimumsportsanalysis.com](http://www.optimumsportsanalysis.com)

# An Experts Guide to Performance Analysis E-book.

## Chapter 4 – Performance Analysis Conferences & Books

This chapter contains a quick synopsis of the 2 main sports analytics conference I have attended in the last couple of years. I have also put together a list of over 15 Performance Analysis books for your enjoyment.

1. MIT Sloan Sports Analytics
2. Sports Analytics Conference
3. Performance Analysis Books

## MIT Sloan Sports Analytics Conference

2,700 [people](#) geeks descended on the Boston Convention Centre for the 2013 MIT Sloan Sports Analytics Conference. Since the conference was launched 7 years ago I have always wanted to attend. Although videos of the conference have been published online for the last number of years there is nothing like being there.

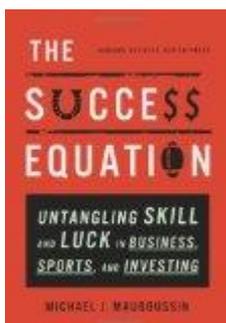
From a personal point of view the biggest advantage of being there was to finally meet face-to-face with people I had only ever spoken to on Twitter/Skype for the last number of years. Finding anybody proved a lot harder than I had thought it would be. The conference centre is massive and trying to recognise somebody from their Twitter profile pic is not the best method. (Especially [@SimonGleave](#) and his coffee cup!!).

### Revenge of The Nerds



The first panel of the day was a who's who of Sports Analytics Celebrities; Mark Cuban, Nate Silver, Michael Lewis, Paraag Marathe & Daryl Morey. Needless to say it was a packed house and it was standing room only about 15 minutes before they took the stage. Michael Lewis chaired the panel and asked everyone what life events had got them to this stage. It was remarkable how 'lucky' and serendipitous each person's story was to arrive at the forefront of Sports Analytics. From a learning perspective there wasn't too much to learn from this panel it was more entertaining than educational. In a way it was a shame that these 5 'super geeks' had to share an hour between them, but as an opening of a conference it was a good start.

### Luck - Michael Mauboussin



Michael Mauboussin wasn't somebody I had come across before but after listening to his presentation I was fascinated and immediately went out and got his book, [The Success Equation, Untangling Skill and Luck in Business, Sports and Investing](#). After the 5 super geeks opening remarks about how luck had played such an important role in their career this presentation showed how important luck is in sport and something that is probably underestimated by most analysts and coaches. I really do recommend you go out and get this book. I'm only a few chapters in but it makes you think differently. Reading this and the [Signal & Noise by Nate Silver](#) are the best 2 books in the area of analytics I have read since Moneyball.

## It's Not What You Said, It's The Way You Said It!



The most common theme running through the whole conference was the need for analysts to be better communicators. In fact the second panel I attended was Data Visualization and had some very experienced Data Visualization experts, especially; Joe Ward, Sports Graphics Editor, New York Times & Ben Fry, Fathom. Looking back over my notes I think every panel talked about the need for analysts to be better communicators and presenters of their findings. It's why I feel so strongly than when looking at skills to learn as a graduate you should be looking at Data Visualization software and learning from the type of work being done by Joe Ward in the NY Times.

## Soccer Analysts Panel



The Soccer Analytics Panel was chaired by Marc Stein of ESPN and had Blake Wooster of ProZone and Chris Anderson of the excellent [Soccer By The Numbers Blog](#) on the panel. Chris is also about to launch a new book ([\*The Numbers Game: Why Corners Should Be Taken Short, Teams Are Only As Good As Their Worst Players, and Changing the Manager Doesn't Change Much\*](#)), without reading it I know you should get it. They spoke briefly of the barriers and reluctance still in football to fully embrace analytics. In general I thought the conversation was useful and is worth a look once the video goes live. There have been others who have reviewed the panel in more detail and I recommend you check them out [here](#) and [here](#).

## Final Thoughts



Although the conference was thoroughly enjoyable, the cost to attend something like this is considerable when you're funding it yourself, which I did. The ticket alone set me back almost \$600, add in flights and accommodation and it adds up to a serious commitment. And as good as I found it I couldn't help think that there was very little concrete learning I could take away and that was not just my opinion, most people I spoke to said the same thing. That's no fault of the conference I suppose. Asking an expert to distill a lifetime's learning into 15 minutes on a panel is very difficult if not impossible. The whole experience left me with the following thought if conferences are a poor learning environment what is the best way to up-skill and learn new skills. The job is the best place to practice but not necessarily the best environment to learn new skills, especially in emerging fields. So after university what is the best way to learn new skills?

## Sports Analytics Conference



I was very lucky to blag an invite to the first [Sports Analytics Conference](#) held in Manchester Business School. This is the first time a conference like this has been held in the UK. The day was action packed with talks and networking opportunities and while I can't do the talks justice in this format I hope to summarize what I took from some of the talks. There are some talks that I have not spoken about here – these presentations contained a lot of data, which without, I really couldn't do them justice, for the rest I hope I can give some flavor of what they were like.

The conference opened with a video of Billy Beane welcoming everybody to the inaugural event - it was an impressive start and a sign of things to come.

### 1. Tesco : How Tesco mined it's data to become number 1



This might be a surprising speaker at a sports conference but for me it was a great way to open up the conference. Tesco collect an enormous amount of data on their customers, through their club card and Andrew Higgins presented how they use this data on a daily basis to compete. Andrew used the very little help tagline to highlight how like a sports team they look for every little 1% to make them better than their competitors and how data plays such a huge role in this. Andrew

also highlighted the amount of data we are now creating. In 48 hours civilisation is now creating as much data as it did in its history up until 2003!!

### 2. Professor Bill Gerrard: Discovering the secrets of The Process: Evidence based coaching in Elite Team Sports.



Bill now works with Saracens Rugby but has worked with Billy Beane (Oakland A's GM), so he has a wealth of experience in sports analytics. One of the opening comments here was that stats seldom provide definitive answers, rather they provide context that complements the coaching process.

Bill also gave a good explanation of why Moneyball was worked so well in Baseball and why we must always bear this in mind when we apply its principles to other sports.

- **The Type of Sport** – Baseball is very different to an invasion game like Soccer or Rugby. There are many more dynamics at play in an invasion game.

- **The Data** – The data the Oakland A's used was open data – it was available to every team, they just happened to be the first ones to use it, but their competitive advantage didn't last for long. Also the data in baseball is very predicative that's not the case in other sports.
- **The Function** – The primary benefit and reason for collecting this information was for player recruitment, not necessarily to do with anything that takes place on the field.

Bill now works with Saracens Rugby and while he applies 'Moneyball' principles he was at pains to point out that in an invasion game it is imperative to apply these principles along with coaching context. Each coach at Saracens spends a few hours coding the games, not just judging players on the outcome but rather on the Effectiveness, Efficiency & Effort. It is still data generation **but data generation by experts!**

### 3. Ian Lenaghan: Winning on & Off the field with Analytics, Improving the bottom line.



Ian is the Owner/Chairman & CEO of Oxford United and Wigan Warriors Rugby League Club. Ian's talk was great because it gave a perspective of monitoring players on & off field from an owner's point of view. For me it highlighted how important the culture of an organisation is. If the Owner, Manager and players are not all on the same page it is very difficult to move forward. As proof of their concept Wigan (with exactly the same squad) went from 6<sup>th</sup> place to champions in

12 months, while also turning a large loss into a profit.

### Rob Lowe, Opta: A Statistical analysis of the influence of the match officials in Rugby.



Rob gave more of a practical presentation of stats. He used Penalties in both Rugby Union and League to give an example of correlating stats to match outcome. There were some peculiar findings in his findings from over 318 games. Rob just looked at the total penalty count in a game and wanted to see if it had an influence on the match outcome.

While the data was informative Rob did highlight one important issue. It is very difficult to contextualize everything. This tied in nicely with Bill Gerrard's point about adding coaching context to the data is not only important but will also give you a competitive advantage. Some of the context that you ignore at your peril.

- Match Time

- Penalty Location
- Scoreline
- Players on the pitch
- Weather conditions
- Referee

## 5. Dr. Fergus Connolly: The 5 I's of Information Management.



Fergal is a consultant to sports scientists, performance directors and coaches in elite sport. Fergal had a very well designed presentation – it was actually a movie/slideshow of images and quotes related to his presentation. He had obviously put a lot of effort not just into the content of what he was presenting but also the way it was delivered. Fergus spoke primarily about information management and broke it down to the 5 I's.

- Instant – understand the immediacy of information. Next week is probably too late
- Integrated – you must be able to correlate information and easily compare one set with the other.
- Important – Make sure data is simple, clean, understandable.
- Individual – Make sure the information is individual, even in team sports different players have different playing standard, key performance indicators and learning styles. Adapt your approach.
- Intuitive – How easy can you make your data to understand. Make data for the masses not for the geeks.

## 6. Manchester City: Our Past, Present and Future approach to Analytics.



This was a great presentation. Man City used 4 presenters – which they were quick to joke about from the start. Before I get into the actual content of the presentation a quick thought on how it was presented. They were one of the few presenters who really put huge effort into how they presented their information. They used a tool called Prezi but beyond that they used loads of images and video. This is much better than wordy PowerPoint presentations where attendees

are always reading ahead of your speaking. Speaking to people afterwards they remarked how slick the presentation was and I think people underestimate what an important part the delivery plays alongside the actual content.

The four presenters were; **Simon Wilson (Strategic Performance Manager), Edward Sulley Performance Analysis Team), Gavin Fleig (Head of Performance Analysis), David Fallows (Scouting & Recruitment Co-Ordinator).**



Now for the content – this too gets top marks. The presentation started with a bit of a journey back in time. A sort of 'This is Your Life' of performance analysis! This was a great look back and most of the analysts chuckled to themselves as they remembered what it was like in the 'old days' of the Swap Shop. What was most interesting is we forget that the 'old days' were probably only

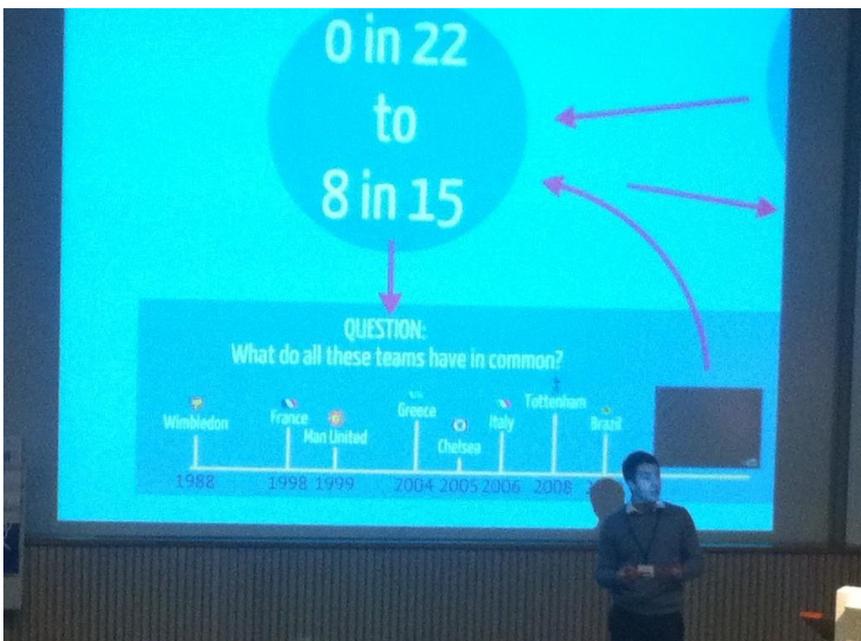
2004/2005. For example it wasn't until that season that teams were able to get as much footage as they liked. Until that time they relied on swapping VHS tapes and recording highlights programmes which contained about 28 mins of footage. Hard to believe and for me really highlights how we are still at the early stage of all this.

They also made some great points about analysts being much more than number cruncher's. Analysts must have good personal skills to mix with coaches and players, be creative and have excellent presentation skills in either delivering or preparing a presentation.

### **Gavin Fleig - Head of Analysis**

The presenters changed throughout, and up next was Gavin Fleig the head of analysis at City. He spoke about the importance of conducting

- **Correct analysis,**
- **Delivering it effectively and then**
- **Confirming the learning.**



He also spoke about something interesting – **Inspiring the players!!** This caused some debate in the bar afterwards when I was chatting to a few other analysts, that perhaps as analysts we underestimate the power of belief?

Gavin gave a fantastic practical application of analysis, he showed a sort of historical time line, which listed team names (some country and some club). He then asked what have these teams got in common – there was silence. He then stated that all these teams

had one major championships with a goal scored from a corner. They then showed a video of the 8/10 goals. Man City used this with their players. City had gone 22 games and not scored a goal from a corner. After this..... they scored 8 goals in 15 games. For me this was such a powerful use of analysis. Yes they had the data but they didn't walk into a room full of players and put up figures of 0/22 or the number of championships that had been one with a corner. Instead they used imagery first and foremost backed up by numbers;

## 0/22 – Correct Analysis

## Video and Images – Effective Delivery

## 8/15 - Confirm learning



This presentation was the most practical and gave a fantastic insight to what analysis looks like at a Premier League Club. There were loads of little nuggets of information to pick up – unfortunately faster than my pen could go at times. One lasting image of their talk will be how in a small way analysis has gone from Statto (Fantasy Football) to Brad Pitt.



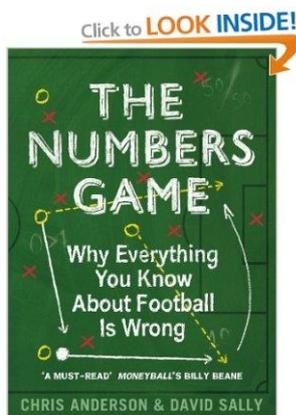
It's a great image change for the industry – now as analyst can we step up to the mark?

## 7. And Finally....

I will leave you with the man himself - Billy Beane. This is a longer version of the video played at the opening of the conferen([link](#))

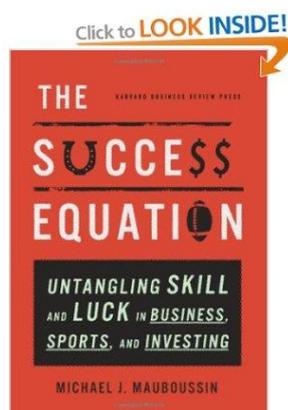
## Performance Analysis Books

There has been a significant growth in the number of analytical books now on the market. Here is a rundown of some I have read or come across that are worth checking out. While not all will be relevant to your sport I think there is value in reading how other sports have applied the principle of analysis and discovering new and innovative ways you can adapt that to your sport. So in no particular order here is a list.



### **The Numbers Game: Why Everything You Know About Football is Wrong. Chris Anderson & David Sally**

Football has always been a numbers game: 4-4-2, the big number 9 and 3 points for a win. But what if up until now we've been focusing on the wrong numbers? What if the numbers that really matter, the ones that hold the key to winning matches, are actually 2.66, 53.4, 50/50, and  $0 > 1$ ? What if managers only make a 15% difference? What if Chelsea should have bought Darren Bent? *The Numbers Game* is essential reading for football fans everywhere and will also appeal to readers who loved *Moneyball* and *Freakonomics*.



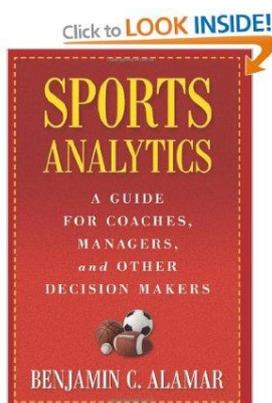
### **The Success Equation: Untangling Skill and Luck in Business, Sports, and Investing**

What role, exactly, do skill and luck play in our successes and failures? Some games, like roulette and the lottery, are pure luck. Others, like chess, exist at the other end of the spectrum, relying almost wholly on the skill of the players.

But in every other domain--from business, to investing, to sports--skill and luck seem almost hopelessly entangled.

In his provocative new book, Michael Mauboussin untangles the intricate strands of skill and luck, defines them, and provides useful frameworks for analyzing their relative contributions. He

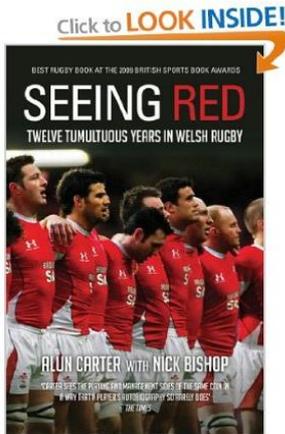
offers concrete suggestions for how to put these insights to work to your advantage in business and other dimensions of life.



### **Sports Analytics: A Guide for Coaches, Managers, and Other Decision Makers**

Benjamin C. Alamar founded the first journal dedicated to sports statistics, the *Journal of Quantitative Analysis in Sports*. He developed and teaches a class on sports analytics for managers at the University of San Francisco and has published numerous cutting-edge studies on strategy and player evaluation. Today, he cochairs the sports statistics section of the International Statistics Institute and consults with several professional teams and businesses in sports analytics. There isn't a better representative of this emerging field to show diverse organizations how to implement

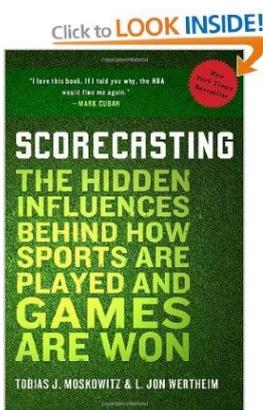
analytics into their decision-making strategies, especially as analytic tools grow increasingly complex.



## Seeing Red: Twelve Tumultuous Years in Welsh Rugby

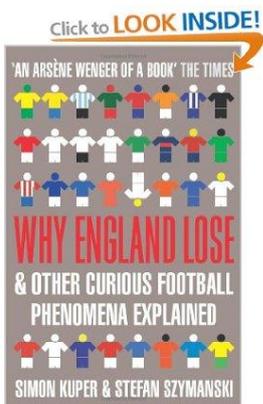
Alun Carter experienced the highs and lows of the Wales national rugby squad throughout his 12 years working for the WRU. During this time, he saw a number of high-profile coaches come and go, and in *Seeing Red* he delivers a brutally honest account of what it was like to work with each of them.

Carter does not shy away from controversy, and he pulls no punches in his assessment of the rift between Graham Henry and Sir Clive Woodward, the personal and political situation that led to Mike Ruddock losing his job, and the difficulty of handling the group dynamics within the national squad. The former analyst also provides an informed appraisal of the remarkable 2005 and 2008 Grand Slam victories.



## Scorecasting: The Hidden Influences behind How Sports Are Played and Games Are Won

Drawing from Moskowitz's original research, as well as studies from fellow economists such as bestselling author Richard Thaler, the authors look at: the influence home-field advantage has on the outcomes of games in all sports and why it exists; the surprising truth about the universally accepted axiom that defense wins championships; the subtle biases that umpires exhibit in calling balls and strikes in key situations; the unintended consequences of referees' tendencies in every sport to "swallow the whistle," and more.



## Why England Lose: And other curious phenomena explained

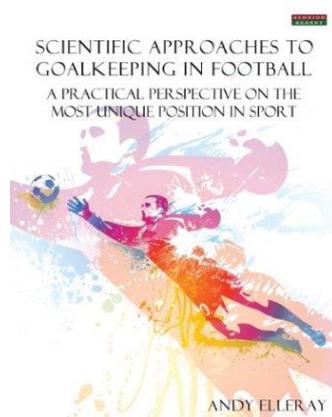
"Why do England lose?"

"Why do Newcastle United always buy the wrong players?"

"How could Nottingham Forest go from winning the European Cup to the depths of League One?"

"Penalties - what are they good for?"

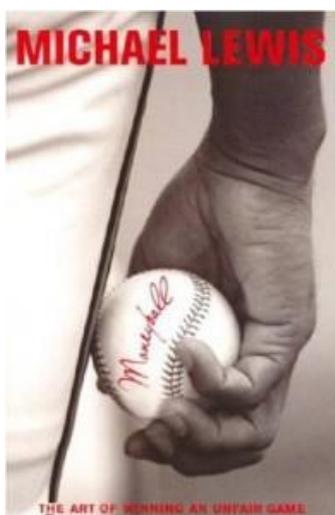
These are questions every football fan has asked. *Why England Lose* answers them. It brings the techniques of bestselling books such as *Freakonomics* and *The Undercover Economist* to bear on our national sport.



## **Scientific Approaches to Goalkeeping in Football: A Practical Perspective on the Most Unique Position in Sport**

Do you coach goalkeepers and want to help them realise their fullest potential? Are you a goalkeeper looking to reach the top of your game? Then search no further and dive into this dedicated goalkeeping resource. Written by goalkeeping guru Andy Ellera this book offers a fresh and innovative approach to goalkeeping in football. With a particular emphasis on the development of young goalkeepers, it sheds light on training, player development, match performances, and player analysis. Utilising his own experiences

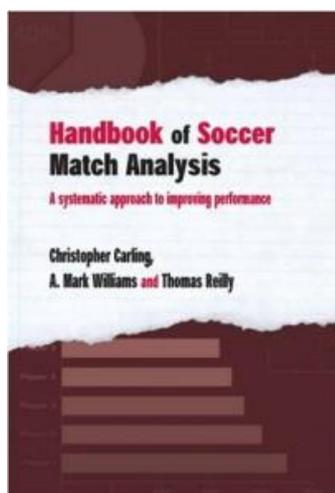
Andy shows the reader various approaches, systems and exercises that will enable goalkeepers to train effectively and appropriately to bring out the very best in them.



## **Moneyball The Art of Winning An Unfair Game**

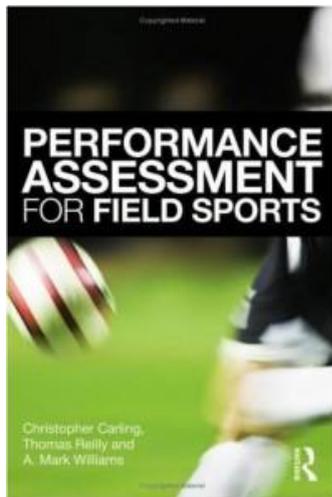
Not really sure this book needs an intro – if you are reading this I presume you have already read Moneyball. But a quick synopsis. Billy Beane, general manager of MLB's Oakland A's and protagonist of Michael Lewis's Moneyball, had a problem: how to win in the Major Leagues with a budget that's smaller than that of nearly every other team.

Beane and his staff, buoyed by massive amounts of carefully interpreted statistical data, believed that wins could be had by more affordable methods such as hitters with high on-base percentage and pitchers who get lots of ground outs.



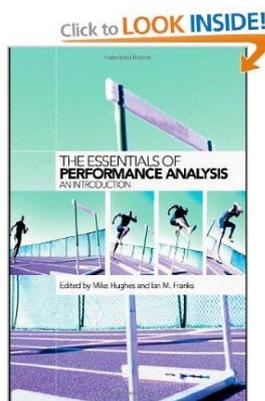
## **Handbook for Soccer Match Analysis**

Analyzing individual and team play is essential to improving performance in soccer, but identifying the right information and putting it to good use can be tricky. This is the first book to focus entirely on match analysis in the game of soccer. Representing an essential and unique resource, this handbook looks at the very latest in match analysis research, and at the innovative technologies being used by professional clubs. Bridging the gap between theory and practice, it documents the methods by which coaches, sport scientists and fitness coaches can improve individual and team performance in soccer. Published 2006.



## **Performance Assessment for Field Sports: Physiological, Psychological and Match Notational Assessment in Practice**

What are the most effective tools, techniques and technologies available to coaches and sport scientists in the assessment of player and team performance? This is the first book dedicated to the assessment of performance in field sports such as soccer, rugby, hockey and lacrosse. It provides detailed and clear information about the laboratory and field-based methods that can be used to evaluate improvements in individual and team performance, from basic physiological assessment to the use of video and information technologies.

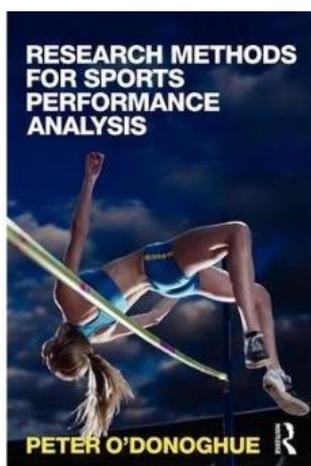


## **The Essentials of Performance Analysis: An Introduction**

What is performance analysis and how does its use benefit sports performance? How can you use performance analysis in your sport?

*The Essentials of Performance Analysis* answers your questions, providing a complete guide to the foundational elements of match and performance analysis for new students and beginners.

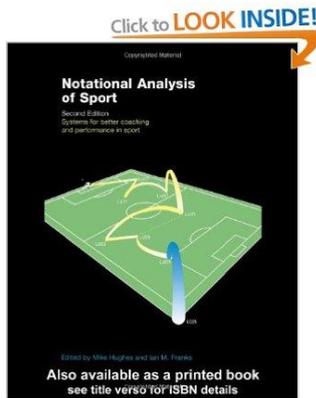
As well as a basic introduction to the sport science and theory that underlies performance analysis, the book contains many practical examples to show performance analysis in its applied context.



## **Research Methods for Sports Performance Analysis**

Modern techniques of sports performance analysis enable the sport scientist, coach and athlete to objectively assess, and therefore improve upon, sporting performance. They are an important tool for any serious practitioner in sport and, as a result, performance analysis has become a key component of degree programmes in sport science and sports coaching.

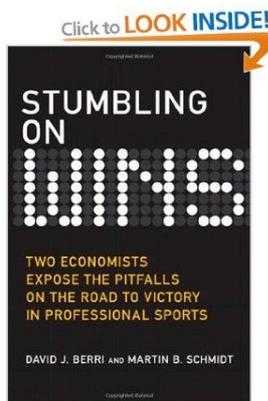
*Research Methods for Sports Performance Analysis* explains how to undertake a research project in performance analysis.



## Notational Analysis of Sport: Systems for Better Coaching and Performance in Sport

Notational analysis is used by coaches and sport scientists to gather objective data on the performance of athletes. Tactics, technique, individual athlete movement and work-rate can all be analyzed, enabling coaches and athletes to learn more about performance and gain a competitive advantage.

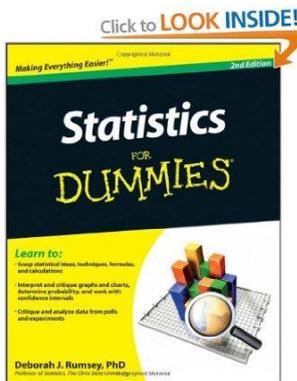
This new edition is updated with information about the latest technology and research in notational analysis. There's also practical guidance for constructing notational systems for any sport and relating data to real-life performance and coaching.



## Stumbling on Wins: Two Economists Expose the Pitfalls on the Road to Victory in Professional Sports

The next quantum leap beyond **Moneyball**, this book offers powerful new insights into all human decision-making, because if sports teams are getting it wrong this badly, how do you know you're not? Sometimes the decisions that teams make are simply inexplicable. Consider: sports teams have an immense amount of detailed, quantifiable information to draw upon, more than in virtually any other industry. They have powerful incentives for making good decisions. Everyone sees the results of their choices,

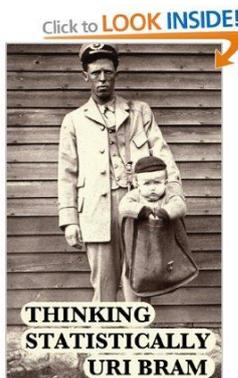
and the consequences for failure are severe. And yet... they keep making the same mistakes over and over again... systematic mistakes you'd think they'd learn how to avoid.



## Statistics For Dummies

The fun and easy way to get down to business with statistics. Stymied by statistics? No fear this friendly guide offers clear, practical explanations of statistical ideas, techniques, formulas, and calculations, with lots of examples that show you how these concepts apply to your everyday life. Statistics For Dummies shows you how to interpret and critique graphs and charts, determine the odds with probability, guesstimate with confidence using confidence intervals, set up and carry out a hypothesis test,

compute statistical formulas, and more.



## Thinking Statistically

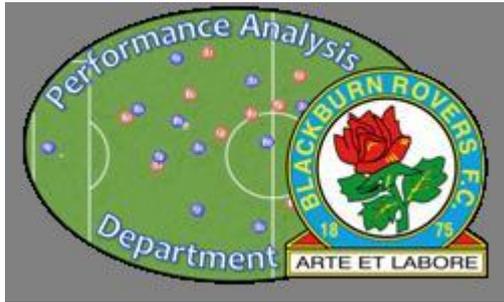
Thinking Statistically is the book that shows you how to think like a statistician, without worrying about formal statistical techniques. Along the way we learn how selection bias can explain why your boss doesn't know he sucks (even when everyone else does); how to use Bayes' Theorem to decide if your partner is cheating on you; and why Mark Zuckerberg should never be used as an example for anything.

# An Experts Guide to Performance Analysis E-book.

Chapter 5 – This chapter is all about getting a performance analysis job. There are 3 great pieces in this chapter; Paul Brand from Blackburn Rovers details their internship programme & Will Jones, Prozone, outlines his views on how to get a PA job. I also put in my own thoughts on the subject.

1. Blackburn Rovers Performance Analysis Internship Programme
2. Performance Analysis Employment, Will Jones
3. Getting a Performance Analysis Job
4. List of Universities teaching PA courses

## Blackburn Rovers Performance Analysis Internship Programme



Following on from the [discussion last week](#) on twitter about paid/unpaid internships in performance analysis, **Paul Brand (Head of Performance Analysis at Blackburn Rovers)** wanted to offer his thoughts on the Blackburn's Internship Programme. I sat down with him earlier this week and asked him to explain the scheme at Blackburn and to get an idea of how successful or otherwise it has been.

### **RC: How long have you been running your internship programme?**

**PB:** We are now entering our 4<sup>th</sup> season of utilising interns to enhance our First Team Performance Analysis Department here at Blackburn Rovers Football Club.

### **RC: How many interns have you had in that time?**

**PB:** Over the last 3-4 years, we've had 8 interns in total work within the department. For us, having this internship agreement in place has allowed us to expand the department from 3 people to 5 and as a result, provide a more comprehensive analysis service to the staff and players at Blackburn Rovers.

Of the 8 interns that have worked in the department, 6 have now left the club and we have 2 currently in place.

### **RC: Can you give me an idea of your internship programme this season?**



**PB:** Our current programme is a 2-year internship. The intern works the first season without payment (no expenses provided) with a payment then provided in the second season. I won't disclose the figure of this 2<sup>nd</sup> season payment but while it isn't a large amount of money; we feel it strikes the correct balance in rewarding the intern, sustaining them personally through their

second season and ensuring that we can keep these talented young analysts for more than one season. In the first 2 seasons of utilising interns, we did provide expenses as it was only a 1-season agreement. What we found was that once the club were providing expenses, it was hard thereafter to provide an additional payment to a 2<sup>nd</sup> season intern. The reason to provide nothing in the way of payment/expenses in the first season and then providing a considerable payment in the second season came as a result of this. This agreement is working for us and both the past and current interns have been happy with these agreements.

### **RC: What type of hours are the interns required to work?**

**PB:** When recruiting, we first of all communicate this plan with any potential intern thus making sure that anyone willing to commit themselves to our club for 2 years is fully aware of the financial rewards. The interns are provided with breakfast and lunch free of charge and do receive initialled training kit and all of the relevant clothing required to work outside and travel with the team. They are generally required to work Mon-Fri (8:30am-5:00pm) although we do utilise them at weekends on match days, also sometimes late at night for both first team and reserve team fixtures. Our interns have been required to travel with the teams, stay in the hotels and be completely responsible for the entire analysis process whilst away.

We try and strike a balance of providing them with all of the experience possible during the 2 years whilst allowing flexibility in days/time off to work and earn themselves money from their part-time jobs.

### **RC: What responsibility does a 2<sup>nd</sup> year intern have?**



**PB:** Our current 2<sup>nd</sup> year intern is assigned to our U21 (Reserve) team. Allowing the intern this level of responsibility with one team is essential in improving their skills and experience to a level that will then make them a top candidate when applying for full time positions once the 2 years are up. This point has recently been proven with the intern, who covered our U21 team last year, having recently being offered several full time and salaried positions during the close season.

### **RC: Are many of the interns you've had over the last 3/4 years still working as Performance Analysts?**

**PB:** Of the 8 interns who have worked in the department, apart from the 2 we currently have (one first year and one second year), 5 of the other 6 are now currently full-time, salaried employees within Premier League and Championship clubs with the other currently completing a Masters degree at University. It's worth noting that all of these interns only completed one season as an intern and therefore never received any payment from the club with 5 of the 6 receiving travel expenses only.

**RC: That's a great conversion rate.**



**PB:** This level of success reflects well on both the individuals and the club. This level of employment rate coming out of our internship shows that although none of these interns received any payment during their time here, what they learned and the experience they gained has been crucial in securing them full time employment within professional football clubs.

**RC: Have you any other thoughts on the paid v's unpaid discussion?**

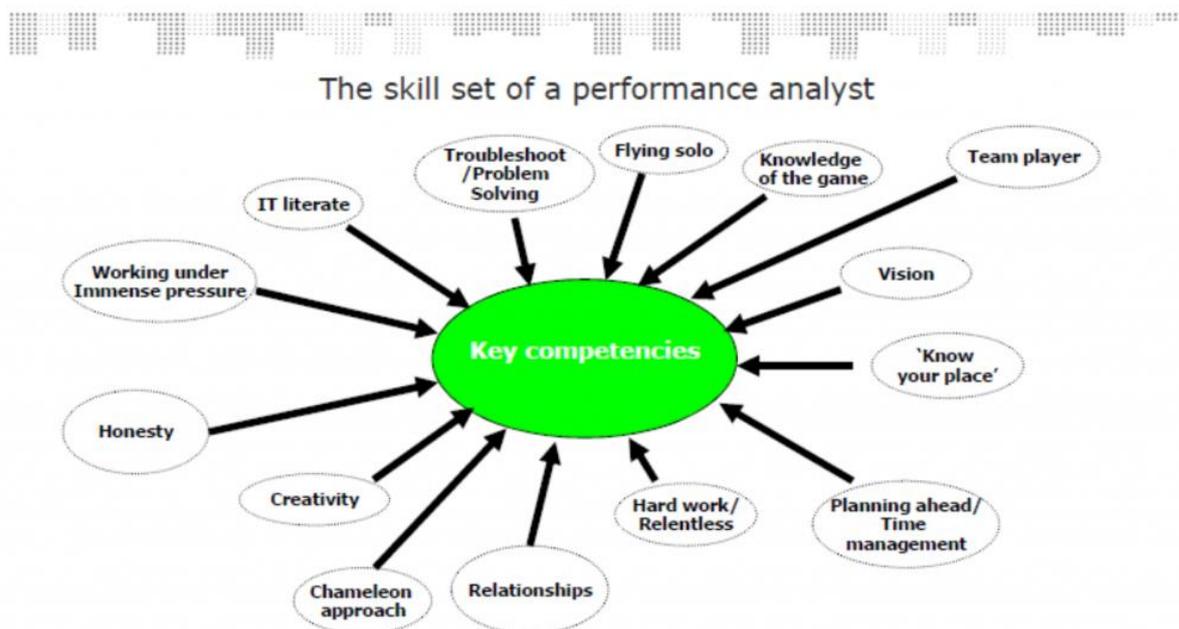
**PB:** If as a club we were in the position to provide 5 salaries and therefore have 5, full time, salaried members of staff within the department then this would be the ideal scenario. That isn't possible however hence the reason to utilise interns. While I don't think its right to take advantage of people willing to work for little or no payment, what we provide here at Blackburn Rovers is an education and the experience to then gain employment within the industry. In my opinion, if an intern is to be utilised to the benefit of the club, then the relationship must be 2-way and an education, the relevant experience and also help finding full-time employment should be provided.

*This is a guest post by Will Jones, Prozone's Head of Performance Analysis. Will is both an employee of the industry but also an employer, both internally for Prozone analysts, internships, placements & work experience students, but also for the clubs whom often ask Will to send on CVs, provide shortlists of students/potential analysts that he knows of and would recommend This gives Will a very good indication of what others are looking for in a Performance Analyst.*

## By Will Jones

It is common knowledge that performance analysis is a highly competitive environment in which to forge a career. The standard of analysis within professional football clubs has increased over the years as the role has developed. Similarly, the number of students graduating with sports degrees and individuals looking to work in the industry continues to grow, a trend which has seen the job market become somewhat saturated of late.

What is apparent, however, is that there are more diverse opportunities available as the role of the analyst and associated work becomes more valued and varied in its approach. For a professional club it is now the norm to have analysts at first team level specialising in pre and post-match analysis, player recruitment and player development within the younger age groups. In recent weeks there has even been an advert at a Premier League club for a Visual Designer to work within the performance analysis team.



Following on from Rob's '[How to Get a Job](#)' where he documents three key strands to establish yourself as a key candidate for a job, I believe that it is key for individuals to have resources and insight from those involved in the industry. This is something that we value on the analysis courses that are run by Prozone. As well as giving future analysts the opportunity to gain experience and practice on the Prozone products, it is key that there is time to network with other attendees and opportunities to speak with Prozone staff. As part

of the courses we run a Q&A session and look to provide an insight into the key skills required by analysts looking for a job.

Below I have listed what I believe to be three of the key skills that are required by those hoping to secure work as an analyst:

## Sporting Knowledge/Analytical Skills



You must show that you are more than just a casual fan. You need to have the ability to work with big data, to find trends, pick out key points and tell the story not just of what is happening, but why. These skills can be demonstrated through coaching experience or qualifications, blogs and websites where you are producing articles, or through volunteering or working at a club.

Sometimes it can be difficult to show you have the appropriate level of analytical ability. You won't be more experienced than the coaching staff you are working with, and they don't expect you to be, but you must prove that you can relate analysis to footballing performance in order to deliver insight.

## Technological Competence



With the way the industry has developed, a good level of technical expertise is crucial. I am by no means an expert with technology myself, but I have an ability with the products I am required to use and have confidence that I could pick up and learn other bits of software and could try to resolve any issues. This competence is built through experience using products and receiving good training, using video cameras, mobile phones, tagging templates, iPads and other devices.

Sometimes people overlook the basics. We all own a laptop, and while we might not have access to Prozone we can take the time to feel comfortable with a range of different operating systems. You don't need to be an expert in everything, but it's important to have an appreciation for things and show you are able to learn quickly when you get the chance to use new software.

## Personal Skills

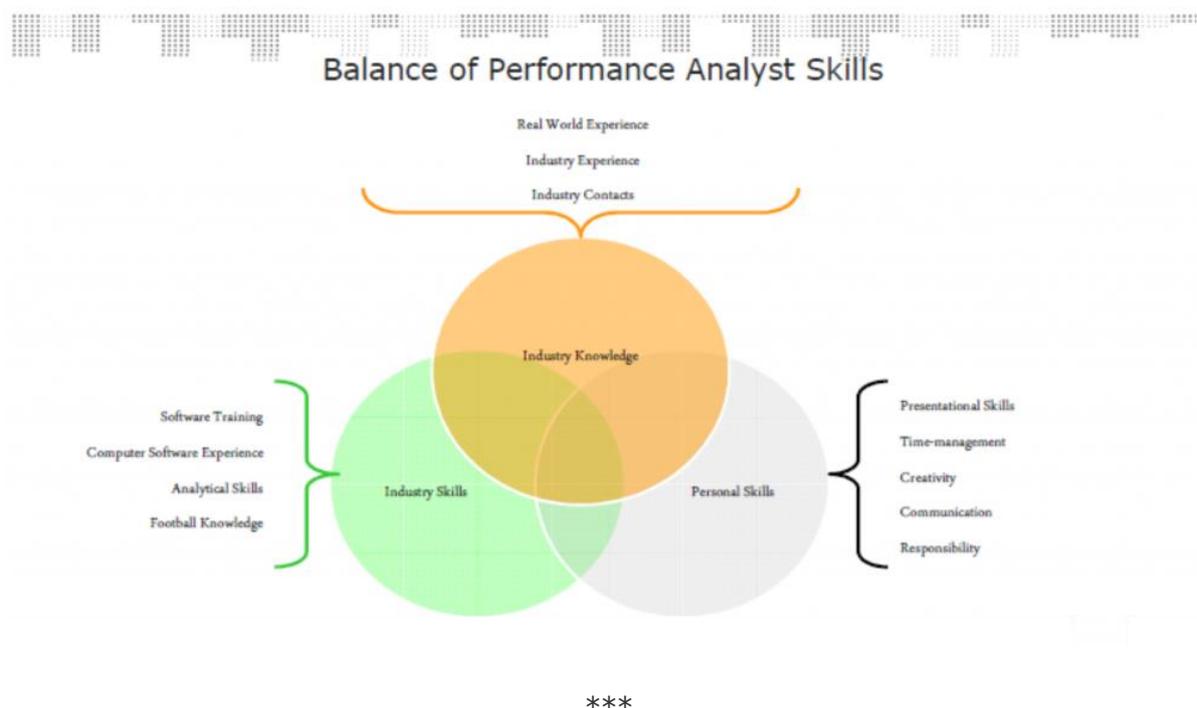


For me, this is an area that is often overlooked, yet one that we can all work on very easily. In any job you need the basic communication, organisation, IT and time-management skills, however I believe that this is magnified in the analysis world. **There is nothing that can really prepare you for the football club environment**, working with players with egos, demanding managers and pressure seven days a week, but everyone can work to improve their communication skills.

We can always test and review our ability to communicate with others, whether presenting at university, holding a meeting, providing customer service or writing an email/cover letter. With any educational or part-time work you can improve your skills base and it's important to remember that and keep developing.

I see a lot of people who have good experience and good product knowledge, but let themselves down in interviews or meetings with poor communication. When interviewing and recruiting, I often find that the candidates are very similar on paper, **so it often comes down to an instinct that is formulated largely on the way someone communicates and conducts themselves.**

We can't all be perfect (I'm certainly not!) and become experts on software that we have limited access to, but everyone can take the time to develop their softer skills and be proactive in terms of gaining experience.



## Quality not Quantity

Regarding industry experience, it is quality and not quantity that really counts. Don't just turn up every day for a year filming training and expect to be employed at the end of it. Aspiring analysts must make the most of their opportunities and experience as many different scenarios as possible. I fully respect those who gain experience at the lower levels, as they will often have a more hands-on experience and get to implement ideas and work more closely with the coaching staff.

Independently there are good opportunities and resources to begin to learn more and develop skills. There are more resources available than ever through the use of Youtube to follow conferences and presentations, as well as the likes of Twitter and online blogs that enable greater access to relevant articles. These platforms also give people the opportunity to get more of an insight into the industry than was previously the case.

While these are only opinions from my specific position in the industry, hopefully they can be of some use to those looking to secure a future in analysis. I've been employed at both club and business level within analysis for five years, as well as being an employer of analysts. I regularly view CVs and enquiries from those seeking work and could go on to write more about the process of applying for roles, but I hope that this brief post has been useful and will motivate you as you continue to learn and develop your analytical skills.

*\*You can find Will on Twitter: [@WMJ87](https://twitter.com/WMJ87)*

## Getting a Job in Performance Analysis



Once people have given up on actually being a professional sportsman the next best thing is to work in professional sports. Therefore it is not surprising that the jobs section on this site is one of the most visited parts.

Because it's so popular I wanted to put together some thoughts and best practices on how to go about securing a job as a full-time performance analyst. This is by no means a perfect document and you should explore every avenue you can but these are my thoughts from being an analyst and interviewing and talking to many of them over the last few years.

### Are you qualified?

For any job advert nearly the first thing people will seek is suitable qualifications and then adequate experience. With that in mind I want to break this section into 3 distinct parts.

1. Academic Qualifications
2. Analysis Experience
3. Sports Experience



**Academic Qualifications**



**Analysis Experience**



**Sports Qualifications**

It is vital that you look at each of these 3 areas as separate skills and each one requires some thought and hard work to reach your potential as an analyst.

## Academic Qualifications



**Unfortunately Graduation does not automatically lead to a job.**

A lot of people seem to consider academic qualifications as a passport to a job. Unfortunately the real world of sport is a lot more competitive than that. It is important to understand that when you enter the jobs market you are competing with every other graduate that has completed a course similar to yours, not just in the last year but probably in the last 3 or 4 years.

For me, academic qualifications are an important part of up skilling yourself, and later in your life, whether you are in sport or not, having at least an undergraduate degree will allow you explore more academic qualifications in the future. As the jobs market become more competitive, the job you once would have got with a degree you now need a masters for and for the old masters job you now need a PhD.



For those finishing/finished their primary degree and looking at a career in performance analysis there are a few more specialist master courses in Performance Analysis than there used to be. These course offers you a good balance of both academic and experiential studies. The quality of the performance labs in different universities will vary, but most will offer you some hands on experience in the commercial software packages on the market.



A word of caution! It is worth considering how specialized you want to get in this area. It might be worth considering a more general MSc in Sports Science rather than specifically concentrating on Performance Analysis.

PA jobs are hard to come by and there are only a limited amount of clubs with the budget and resources to employ somebody on a full time basis. I am not saying there are no jobs to be had, I have seen some

very determined people secure a job in a short period of time, but you will need a bit of luck and great deal of hard work.

## Analysis Experience



Analysis experience offers you the biggest chance to separate yourself from the hundreds of other people looking for similar jobs. In talking to performance analysts the world over most of them at one stage have had to work for free or have started at a very low level before getting into analysis. I know getting experience can be easier said than done but there are a few key things you can do to help yourself along.



**Invest in yourself** – University fees are expensive and will no doubt leave you with a fair amount of debt after you graduate but you have to consider that there are other investments you may need to make.

- Training course outside of university that might benefit you in the long term.
- Is it possible to equip yourself with a commercial software package?
- Become a member of a professional body.



**Training Courses**



**Software Knowledge**



**Professional Body**

The second point above – equipping yourself with a commercial package is one that is really worth considering. If you can show up at a club and say you will do the analysis for free but they have to buy you a laptop and software they will probably say no and spend the money on player wages instead. (I know its short term thinking but unfortunately that's how they think).

Now if you can show up at a club and say you will do the analysis for free and supply the equipment at no cost – what have the club got to lose? In the short-term, don't worry too much about not getting paid; after all this is the investment in yourself you will need to

make, you will find it impossible to get a job in Performance Analysis without practical experience.

What type of investment would you need to make? Laptop: £/\$ 300/400 Software: Can vary greatly but get in contact with companies and beg them for a student license. Talk to your lecturers, they might be able to cut a deal with the companies on your behalf. All-in-all it won't cost that much and in the long term you will be thankful of the investment.

Even if buying a commercial package stretches you too far there are free tools like iMovie and Windows Movie Maker that will get you by in the short-term.

## Sports Experience



What I mean by sports experience is not being just an armchair fan, I mean actively pursuing your coaching badges in the relevant sport. Although you may have little or no intention of becoming a coach it will add something to your CV and your ability to do the job. Understanding the terminology, the phrases and the coaching concepts will warm you much quicker to players and coaching staff.

Like with any job it can take time to bed down and be for your opinion to be trusted – but if you can arrive as an analyst with a good coaching level behind you, coaches may tend to trust you a little more and seek out your opinion from time to time. Otherwise you may become nothing more than a data collector.

## How to Start

Most people will get a list of all the clubs in their area, go to their website, find the analyst and send them an email probably with their CV attached or maybe worse send it to info@localclub.com. It's ok but you have to consider

- 1. How many other people are doing exactly the same thing?**
- 2. How many emails does that analyst get in a day?**
- 3. What makes your email different?**



A standard resume is given **45 seconds** of attention. There are 3 things you need to consider when trying to be remembered by a potential employer.



Nobody responds well to cold calling, join the groups and be willing to share your thoughts.

### 3. Share Your Work



To really separate yourself from the rest why not have a mini website/blog. It's free and can take about 5 mins to set up (wordpress.com). You might feel you have nothing to say, but you will find things and sometimes it's about being able to show an employer you made the effort.

From personal experience I can tell you that employers do read the blogs on this site and I have

been asked numerous times for feedback on some of the guest bloggers on thevideoanalyst.com.

### Final Thoughts

Remember that it is a competitive market out there you need to find ways to separate yourself from the pack. An academic qualification is only one part of the process, understanding your sport, understanding technology and having a track record of experience are all vital to winning the jobs race.

Above all else, be willing to work hard and in the right circumstances for free at the start and if Performance Analysis is something you are determined to do stick at it until you have exhausted all possibilities.

Best of Luck!

## University/College Courses in Performance Analysis

University	Course Name	Duration	Country	Modules
Cardiff Metropolitan	Performance Analysis (MSc/PgD/PgC)	Up to 3 years	UK	All
Nottingham Trent	Mres Performance Analysis	1 year full-time/2 years part time	UK	All
Middlesex	Msc Sports Performance Analysis	1 year full-time/2 years part time	UK	All
University of Limerick	Msc Sports Performance	1 year full-time/2 years part time	Ireland	All
Portsmouth	Msc Sports Performance	1 year full-time/2 years part time	UK	All
Chichester	Msc Sports Performance Analysis	1 year full-time/2 years part time	UK	All
University of Tr�ajs-os-Montes e Alto Douro	Msc Performance Analysis in Team Sports	2 years part time	Portugal	All
Cardiff Metropolitan	Performance Analysis of Sport - BSc (Hons)	3 years full-time (part-time option)	UK	All
Carlow Institute of Technology	MSc in Performance Analysis (2014)	1 year full-time	Ireland	All
Bedfordshire	Msc Sports Performance	1 year full-time/2 years part time	UK	Performance Analysis
Chester	Msc Sports Sciences	1 year full-time/2 years part time	UK	Sports Performance Analysis pathway
Central Lancashire	Msc Sports Coaching	1 year full-time/2 years part time	UK	Heavy focus on Performance Analysis
University of Canberra	Msc Sports Studies	2 years full-time	UK	Performance Analysis
University of the West of England	Msc Coaching Science	1 year full-time/2 years part time	UK	Performance Analysis
Northumbria University	BSc Applied Sport and Exercise Science	3 years full-time	UK	Performance Analysis (Years 2 & 3)
Northumbria University	BSc Sports Coaching	3 years full-time	UK	Performance Analysis (Years 2 & 3)
University of Wolverhampton	BSc Sport and Exercise Science	3 years full-time	UK	Performance Analysis
Chester University	BSc Sport and Exercise Sciences	3 years full-time	UK	Notational Analysis (Years 2 & 3)
University of Limerick	BSc Sport and Exercise Science	3 years full-time	Ireland	Sports Analysis (Years 2 & 3)
Blanchardstown Institute of Technology	BA Sports Management and Coaching	3 years full-time	Ireland	Performance Analysis Modules
University of Chichester	BSc Sport and Exercise Science	3 years full-time	UK	Performance Analysis (Year 2)
University of Chichester	BA PE and Sports Coaching	3 years full-time	UK	Performance Analysis
Carlow Institute of Technology	BA Sport & Exercise (Rugby/Soccer/GAA)	3 years full-time	Ireland	Performance Analysis Modules
Central Lancashire	BA Sports Coaching	3 years full-time	UK	Performance Analysis (Years 2 & 3)
Leeds Metropolitan	BSc Sport and Exercise Science	3 years full-time	UK	Performance Analysis
Anglia Ruskin University	BSc Sports Coaching and Physical Education	3 years full-time	UK	Notational Analysis
Kingston University London	BSc Sport Analysis Coaching	3 years full-time	UK	
Kingston University London	BSc Sport Science	3 years full-time	UK	Analysis in Sport and Exercise
Edith Cowan University	BSc Sport Science and Football	3 years	Australia	Performance Analysis and Player Monitoring in Football
University of Worcester	BSc Sports Coaching Science	3 years full-time	UK	Performance Analysis (years 2 & 3)
Cardiff Metropolitan	BSc Sport and Exercise Science	3 years full-time	UK	Performance Analysis (years 2 & 3)
Cardiff Metropolitan	BSc Sport Coaching	3 years full-time	UK	Performance Analysis (years 2 & 3)
Cardiff Metropolitan	BSc Sport and Physical Education	3 years full-time	UK	Performance Analysis (years 2 & 3)
Sheffield Hallam	BSc Sport and Exercise Science	3 years full-time	UK	Performance Analysis (years 2 & 3)
Sheffield Hallam	BSc Sport Coaching	3 years full-time	UK	Performance Analysis (years 2 & 3)
Sheffield Hallam	BSc Physical Activity, Health and Exercise Science	3 years full-time	UK	Performance Analysis (Year 2)
University of Canterbury	Bachelor of Sports Coaching	3 year full-time	NZ	Performance Analysis years 2 & 3
University of Canterbury	Certificate in Sports Coaching	6 months full-time	NZ	Performance Analysis Papers & Internship possible