

# Michael Maclean

## Football Recruitment and Data Analyst Portfolio

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This portfolio presents selected examples of my work across football data analysis, video workflows, and performance reporting.

The examples provided combine event data, programming, video-review, and statistical modelling to show how I translate football information into practical outputs for recruitment and technical staff.

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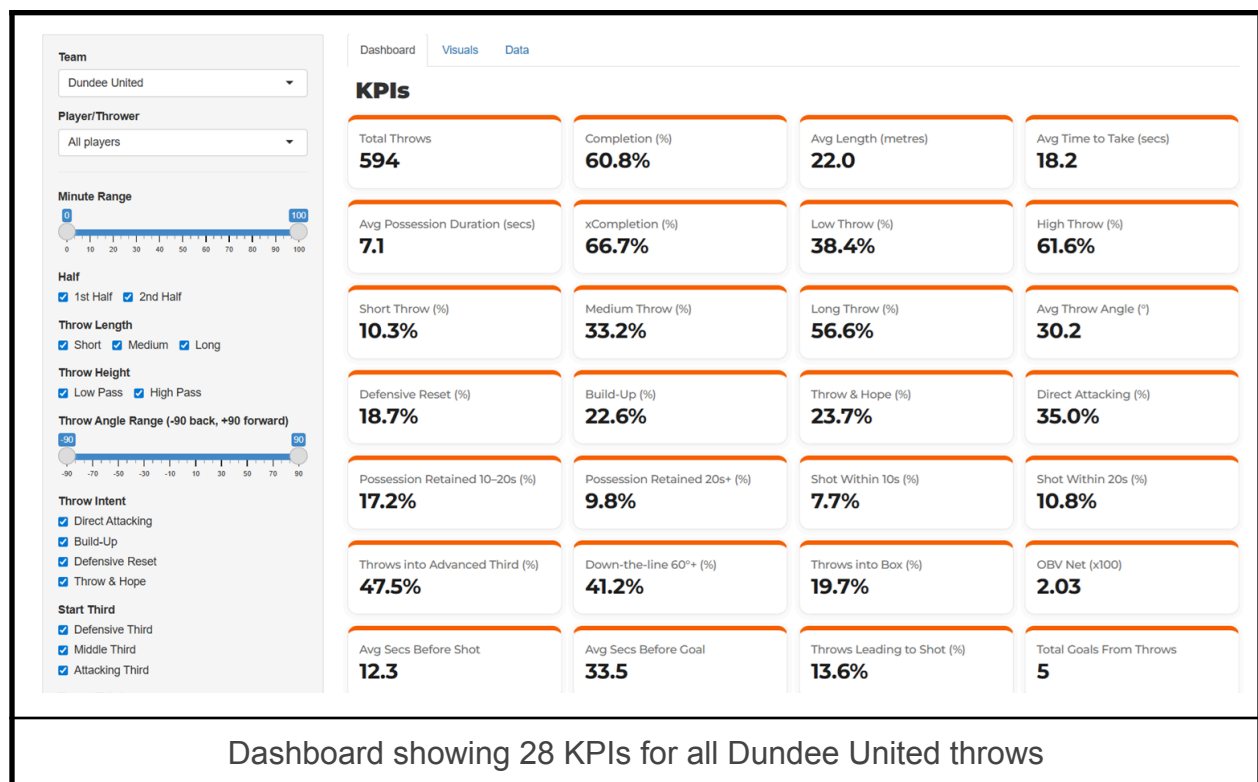
# Scottish Premiership Throw-In Dashboard

This project is part of my professional placement at Dundee United and focuses on measuring throw-in outcomes across the Scottish Premiership using StatsBomb event data in R.

Starting from an initial brief around short throw-ins, I expanded the analysis to compare throw lengths, ball retention, end-of-possession outcomes, and on-ball value creation.

The underlying pipeline extracts event data from the StatsBomb API, cleans and structures it in R, computes custom metrics, and saves to a CSV file which the dashboard reads from. The same pipeline would be applied directly to GPS and performance-testing data.

The end product is an interactive Shiny R dashboard designed to improve visibility of team and player tendencies through KPI summaries, filters, and visual reporting.



Team

Motherwell

Player/Thrower

All players

Minute Range

0

100

Half

☒ 1st Half
 ☒ 2nd Half

Throw Length

☐ Short
 ☐ Medium
 ☒ Long

Throw Height

☒ Low Pass
 ☒ High Pass

Throw Angle Range (-90 back, +90 forward)

-90

90

Throw Intent

☒ Direct Attacking
 ☒ Build-Up
 ☒ Defensive Reset
 ☒ Throw & Hope

Start Third

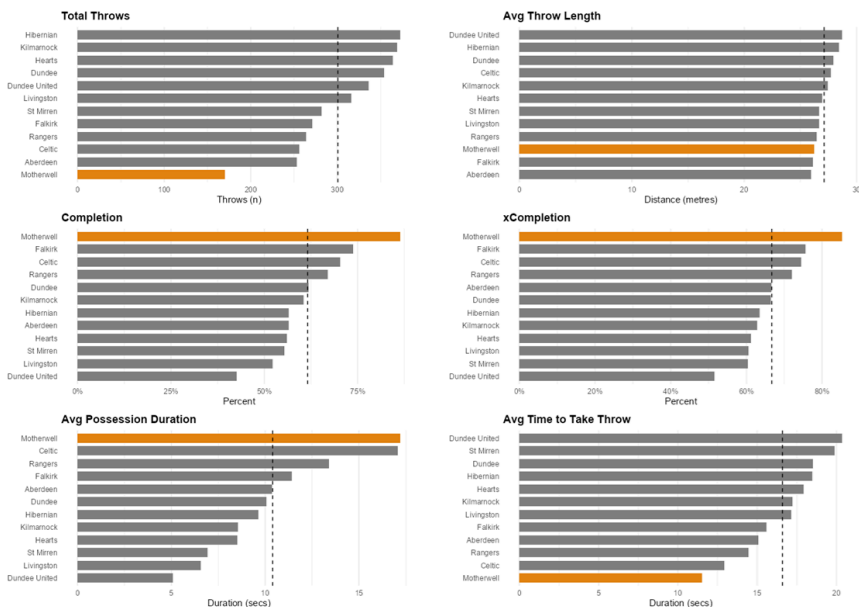
☒ Defensive Third
 ☒ Middle Third
 ☒ Attacking Third

Target Third

☒ Defensive Third
 ☒ Middle Third

Dashboard Visuals Data

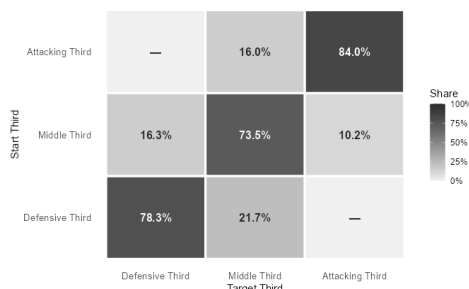
## Team Comparison Charts



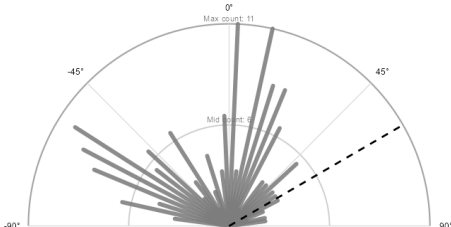
Selected team (Motherwell) visual comparisons for long throws (>20 metres)

## Distribution Patterns

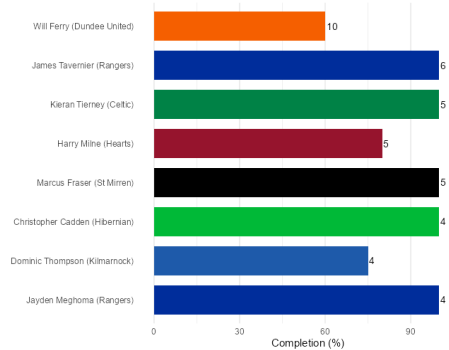
Start Third (Left) → Target Third (Bottom)



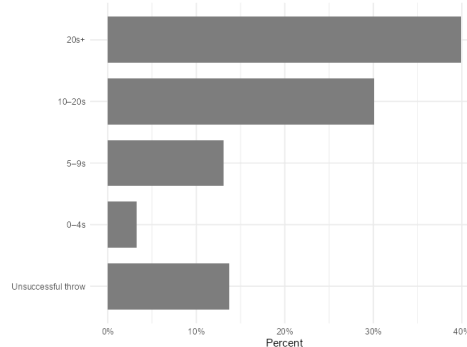
Throw Angle Distribution (Dash = +60°)



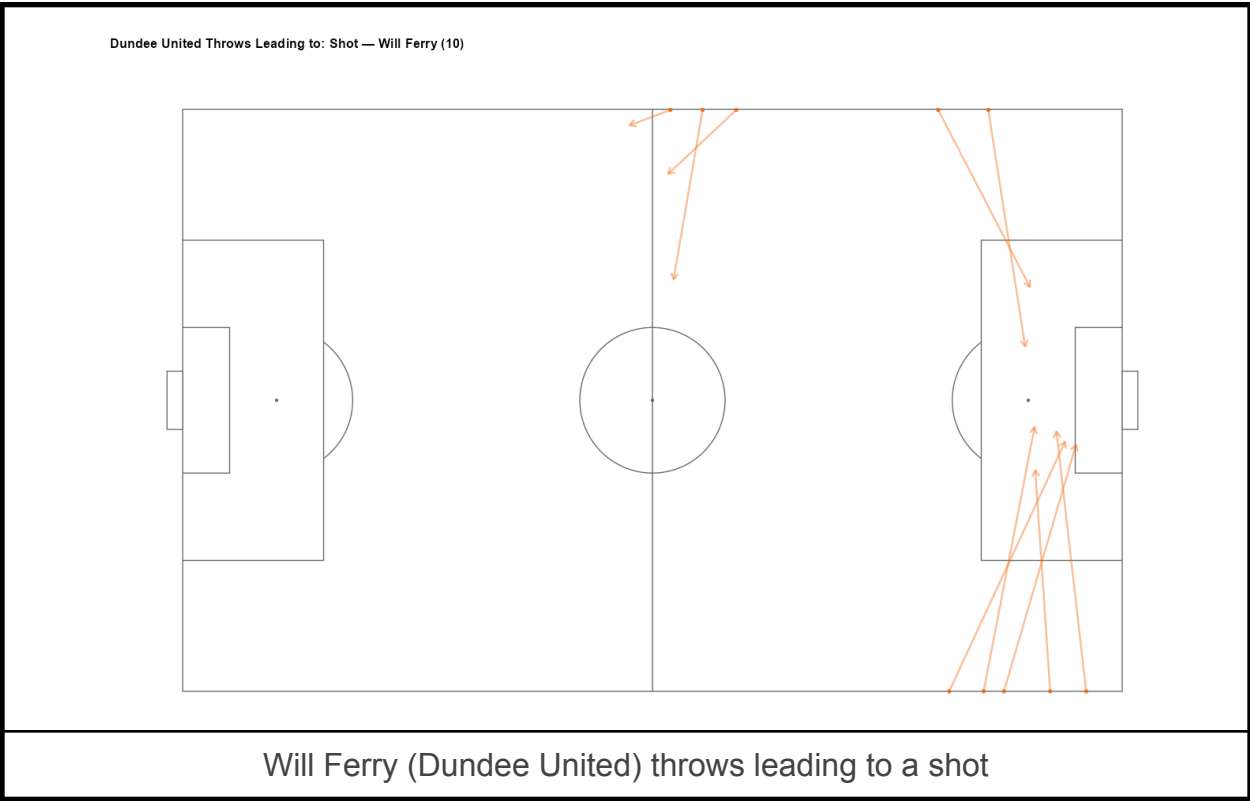
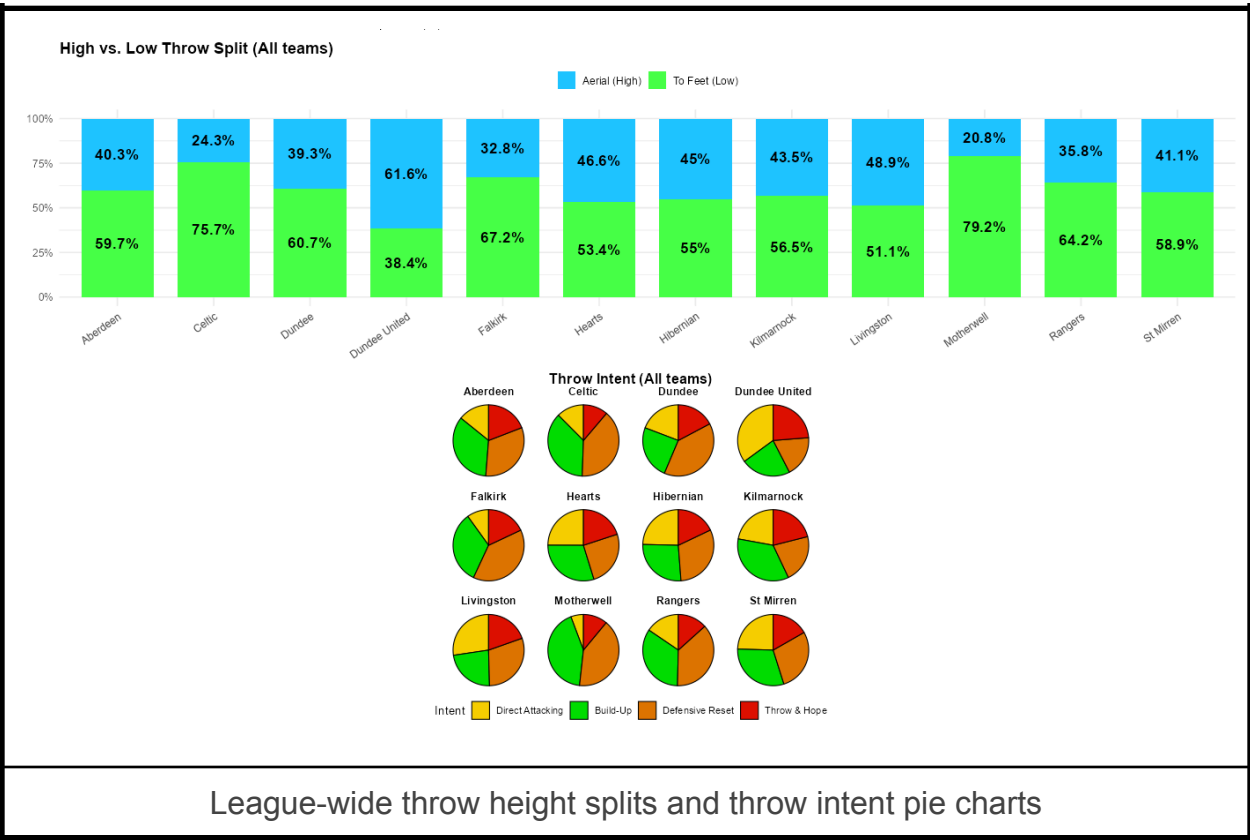
Top Throwers by Volume



Ball Retention Distribution



Distribution pattern visuals for throws which lead to a shot across all teams

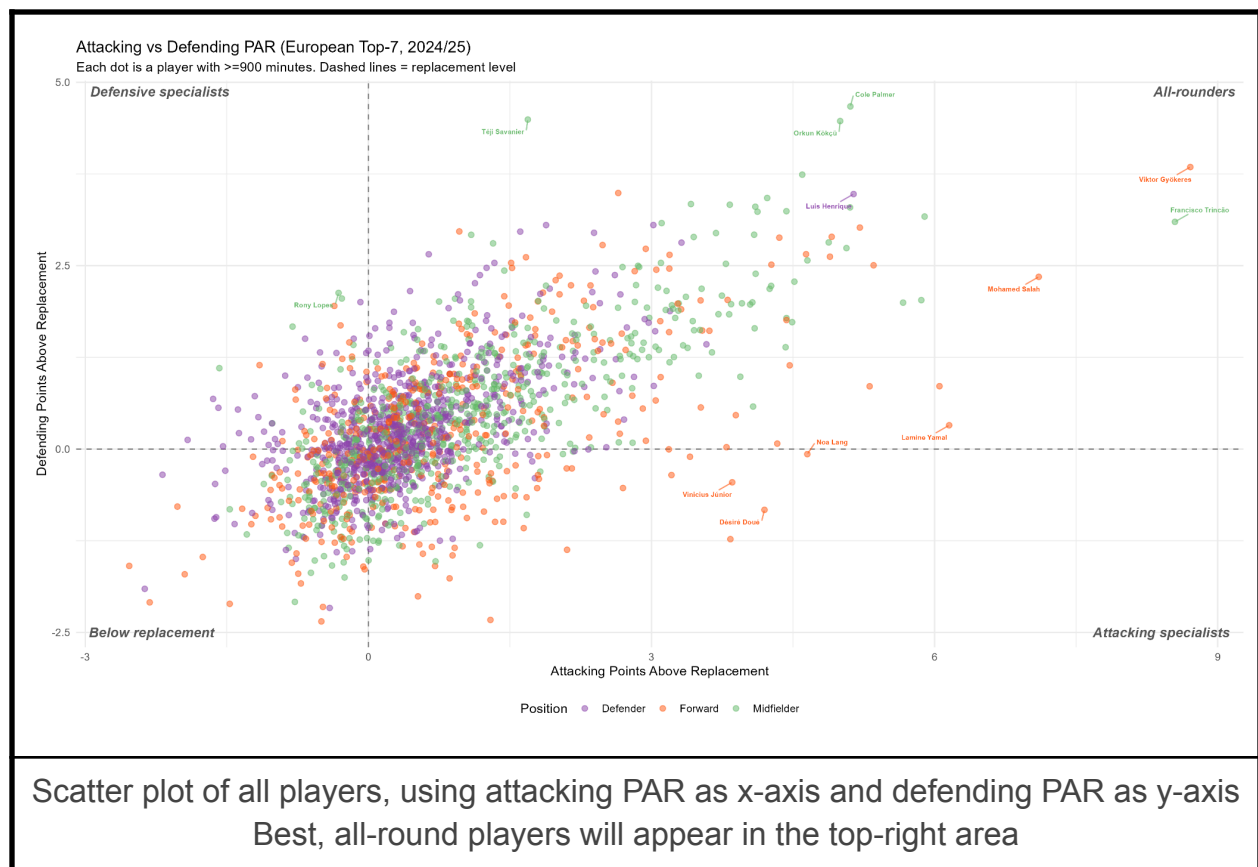


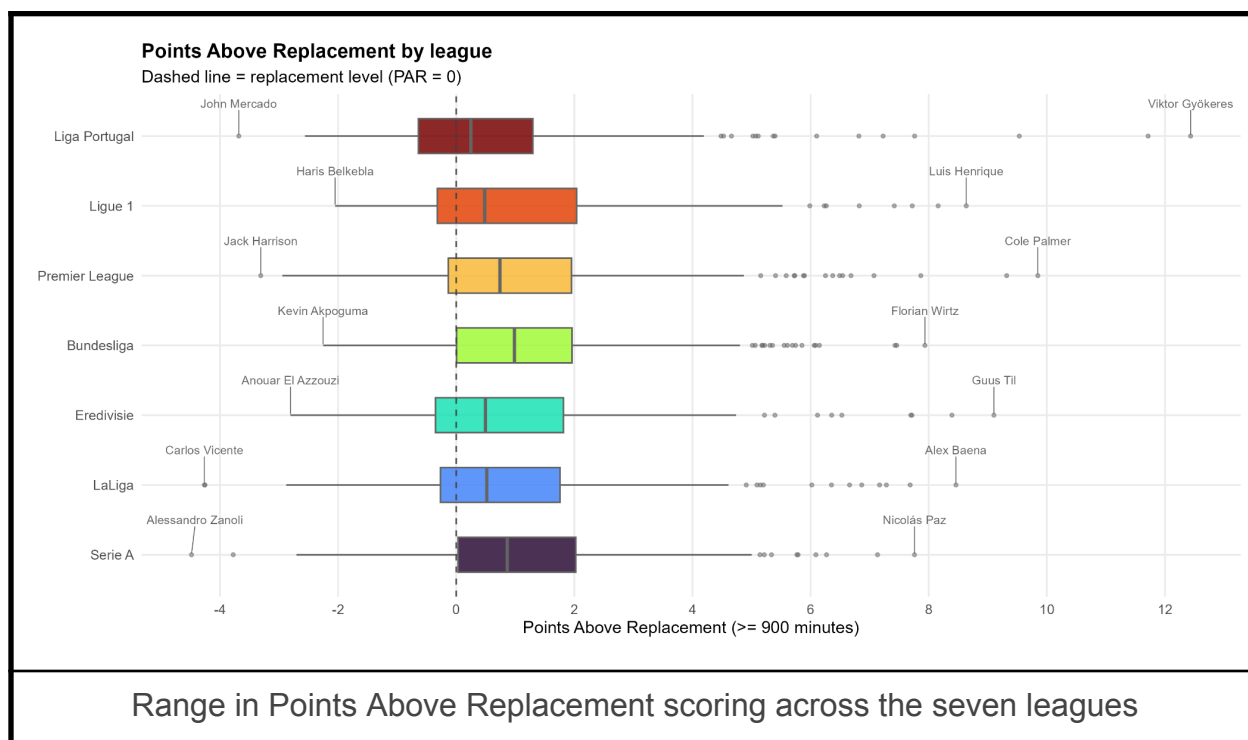
# Points Above Replacement Model

My MSc dissertation research explores a football adaptation of baseball's Wins Above Replacement (WAR) sabermetric by building a footballing Points Above Replacement (PAR) framework for outfield players across Europe's top seven men's leagues.

The aim is to evaluate player contribution from the 2024/25 season relative to replacement-level alternatives and support a robust player comparison model in performance and recruitment contexts by using web scraped FBref data.

Findings showed that Viktor Gyökeres was the most valuable player in the dataset. He scored 12.4, meaning had Sporting Lisbon replaced him with a replacement-level striker they'd be 12 points (4 wins) worse off.





Only one player who ranked top in PAR also won their league's real-world Player of the Season award, with 5/7 Player of the Season winners ranking in the PAR top 3.

| Player of the Season (Real world) | League         | PAR Ranking | Player of the Season (Using PAR #1) |
|-----------------------------------|----------------|-------------|-------------------------------------|
| Viktor Gyökeres                   | Liga Portugal  | 1           | Viktor Gyökeres                     |
| Mohamed Salah                     | Premier League | 2           | Cole Palmer                         |
| Ousmane Dembélé                   | Ligue 1        | 2           | Luis Henrique                       |
| Sem Steijn                        | Eredivisie     | 2           | Guus Til                            |
| Harry Kane                        | Bundesliga     | 3           | Florian Wirtz                       |
| Raphinha                          | La Liga        | 6           | Alex Baena                          |
| Scott McTominay                   | Serie A        | 7           | Nicolás Paz                         |

# Wolves Data-Driven LB Review

Following Hugo Bueno's near-departure from Wolves in the summer 2026 transfer window, I had a look into Wolves' options at left back from a data point-of-view as they look to get promoted back to the Premier League.

If Bueno were to leave in the winter window, I have suggested 3 left backs that could fit in well at the Championship-level.

My presentation can be viewed [here on Google Slides](#).



**WOLVES**  
Data-Driven Position Review:  
Left Back

**Michał Gurgul**, 20 years old

- Transfer value: £2,100,000
- Contract expires June 2028
- 2025/26 data from Lech Poznań (Polish Ekstraklasa)

High data comparison to van Ewijk

- Defensive Actions p90: 5.18 (53 pctile)
- Chances Created p90: 1.07 (61 pctile)
- Successful Crosses p90: 0.63 (64 pctile)
- Recoveries p90: 3.64 (49 pctile)
- Successful Dribbles p90: 0.26 (26 pctile)

Heatmap  
Touches: 2285  
Data source: FotMob

# Chelsea LB/LWB Summer 2026 Review

Following Chelsea's managerial appointment of Xabi Alonso and left back Pep Chavarria, I produced a compact, data-driven review of their options in the left back/left wing-back position.

The main finding was that Chavarria does not stand out, from a data point-of-view, as the ideal LWB that Alonso will be looking for in his system.

My presentation can be viewed [here on Google Slides](#).



 **The Replacement**

- Pep Chavarria (28 years old)
  - Joined Chelsea for ~£16m from Rayo Vallecano
- Played last season at LB, usually in a 4-2-3-1
  - Question marks over his fit to LWB if Alonso plays 3-4-3
- His stats from last season do not compare closely to Grimaldo's
  - Will be expected to press higher and with more intensity
  - Attacking creativity will need to increase as well

| Season performance        |      | Per 90                 |
|---------------------------|------|------------------------|
| Minutes played: 2,681     |      |                        |
| Expected assists (xA)     | 0.11 | <div><div></div></div> |
| Chances created           | 0.91 | <div><div></div></div> |
| Touches in opposition box | 0.97 | <div><div></div></div> |
| Possession won final 3rd  | 0.13 | <div><div></div></div> |



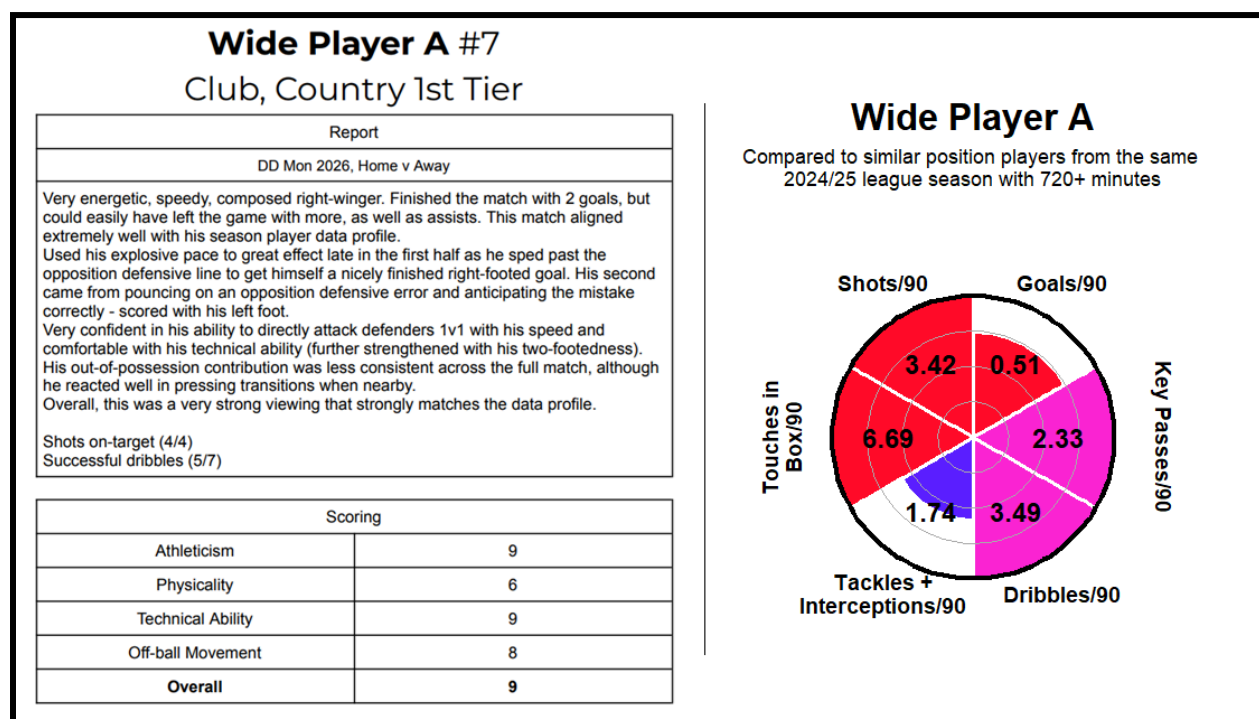
# Scouting Recruitment Example

As part of my recruitment analyst placement with Dundee United, I supported the recruitment workflow by reviewing prospective signings identified through a data-first process on a weekly basis.

My role was to assess whether the Wyscout video aligned with the underlying data profile, summarise the player's style and performance in a concise written report, and score key recruitment traits including athleticism, physicality, technical ability, off-ball movement, and overall suitability.

All reports are produced under strict confidentiality protocols.

The example below has been anonymised and has been written in Google Docs instead of the shared scouting database, but it reflects the same workflow used in practice. Where StatsBomb data is available, I create a simple radar chart in R to profile the player before video review.



# Opposition Analysis Sample

As part of our opposition analysis reports at Berwick Rangers, we note team formations at different transition stages, patterns in set piece routines, and other general insights from the pre-recorded video of the fixture.

The following screenshots are a short selection of the scouting observations I made for an opposition analysis report of Hearts B from Veo recorded footage.

|                                                        |                                         |
|--------------------------------------------------------|-----------------------------------------|
| <b>Date:</b> 19/08/2025                                | <b>Venue:</b> Ainslie Park Stadium      |
| <b>Home Team:</b> Hearts B                             | <b>Away Team:</b> Gala Fairydean Rovers |
| <b>Base Formation:</b> 4-2-4                           | <b>Base Formation:</b> 4-2-3-1          |
| <b>Competition:</b> Scottish Lowland League            | <b>Score:</b> (HT 0-1) (FT 0-2)         |
| <b>Weather:</b> Dry, cloudy, and eventually dark, 15°C | <b>Scout:</b> Michael Maclean           |
| <b>Team Report: Hearts B</b>                           |                                         |

## Formations

|                                                                                    | Attacking Shape                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>This is based on a left sided attack (which was most common)</p> <ul style="list-style-type: none"><li>• 11 attacks directly and aggressively with 3 behind in support</li><li>• 9 drops into a CAM role as 27 takes the main poacher role.</li><li>• 15 just in around/behind 9 for further support</li><li>• 2 looks to cover the gap in LB area</li><li>• 17 tucks into a more RCB role</li></ul> |

## Set-Piece Routines

| Free-Kick                                                                          | Attacking Set Play                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <ul style="list-style-type: none"> <li>• Frequently played short as quickly as possible</li> <li>• Depending on distance to goal, the next pass is always either a low-cross or a long ball</li> <li>• Cross is floated with no real pace on it</li> <li>• In the image shown, <b>11</b> passes the free-kick short to <b>3</b><br/>He then plays a poor low-cross to the right side which is cleared easily</li> </ul> |
| Free-Kick                                                                          | Defending Set Play                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | <ul style="list-style-type: none"> <li>• Strikers not overly involved in defence, - look spring on the counter attack</li> <li>• Wingers are utilised defensively</li> <li>• Defensive players hold a fairly high line when possible</li> </ul>                                                                                                                                                                         |

## Key Takeaways

| Strengths                                                                                                                                                                                                                             | Weakness                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Energy - they are full of it</p> <p>They play quick, fast, and instant</p>                                                                                                                                                         | <p>Attacking players aren't up to the physicality levels of GF Rovers defenders</p> <p>Aerial duels, except the 2 CBs</p> <p>Sometimes their fast play is too fast for themselves</p> |
| Key Player                                                                                                                                                                                                                            | Opposition Success                                                                                                                                                                    |
| <p>Dom Plank #11 (LW)</p> <p>He is <i>the</i> ever beating drum of the Hearts B attack.</p> <ul style="list-style-type: none"> <li>• Speedy</li> <li>• Tricky</li> <li>• Full of energy</li> <li>• Hard worker defensively</li> </ul> | <p>Catching opposition sleeping with their quick, instant set-pieces.</p> <p>Tricky play from the more skillful players drew in fouls.</p>                                            |

# Coding and Tagging Set-up

Coding and tagging footage is the foundation of my match and opposition analysis workflow.

Using Nacsport Scout, I built a custom tagging panel tailored to how the Berwick Rangers staff prioritise analysis, so that every meaningful action that they would like to see can be captured from footage and turned into a filterable clip database for coaching and recruitment use.

The panel below shows the main buttons group events by match phase (attacking outcomes, defensive actions, set-pieces, transition and organisation phases, and disciplinary events) which the coaching staff prioritise for review. Both teams' players are laid out by squad number and position down each side so every tagged event is attributed to a specific player and team.

Hotkeys are encoded to quicken the clip tagging workflow (for example, G for goal, C for clearance, and 4 for corner).

The screenshot displays the Nacsport Scout software interface during a match between Berwick Rangers and Clydebank. The main window shows a live video feed of the game. Overlaid on the right is a custom tagging panel titled 'taggingWindow'. This panel features a central grid of hexagonal buttons representing different event categories: goal (G), shot (S), SoT (S)\*, offside (O), tackle (T), block (B), interception (I), clearance (C), goal-kick (1), throw-in (2), free-kick (3), corner (4), att trans., def trans., att org., def org., and foul comm. (F). Surrounding this grid are lists of players for both teams, organized by position and squad number. Below the video player, a 'Clips' panel shows a list of tagged events with columns for Time, Category, Descriptors, and Notes. The events are color-coded to match the tagging panel buttons.

| Time  | Category  | Descriptors             | Notes |
|-------|-----------|-------------------------|-------|
| 57:32 | goal      | Berwick Rangers: 19 RM  | 1-1   |
| 56:46 | clearance | Berwick Rangers: 17 RCB |       |
| 56:11 | goal-kick | Berwick Rangers: 24 GK  |       |
| 55:48 | tackle    | 17 RCB: Berwick Rangers |       |
| 55:29 | throw-in  | Clydebank: Away LB      |       |
| 55:08 | clearance | Away LB: Clydebank      |       |
| 54:38 | free      | Berwick Rangers: 8 LDM  |       |

Custom Nacsport tagging panel and coded output for Berwick Rangers v Clydebank

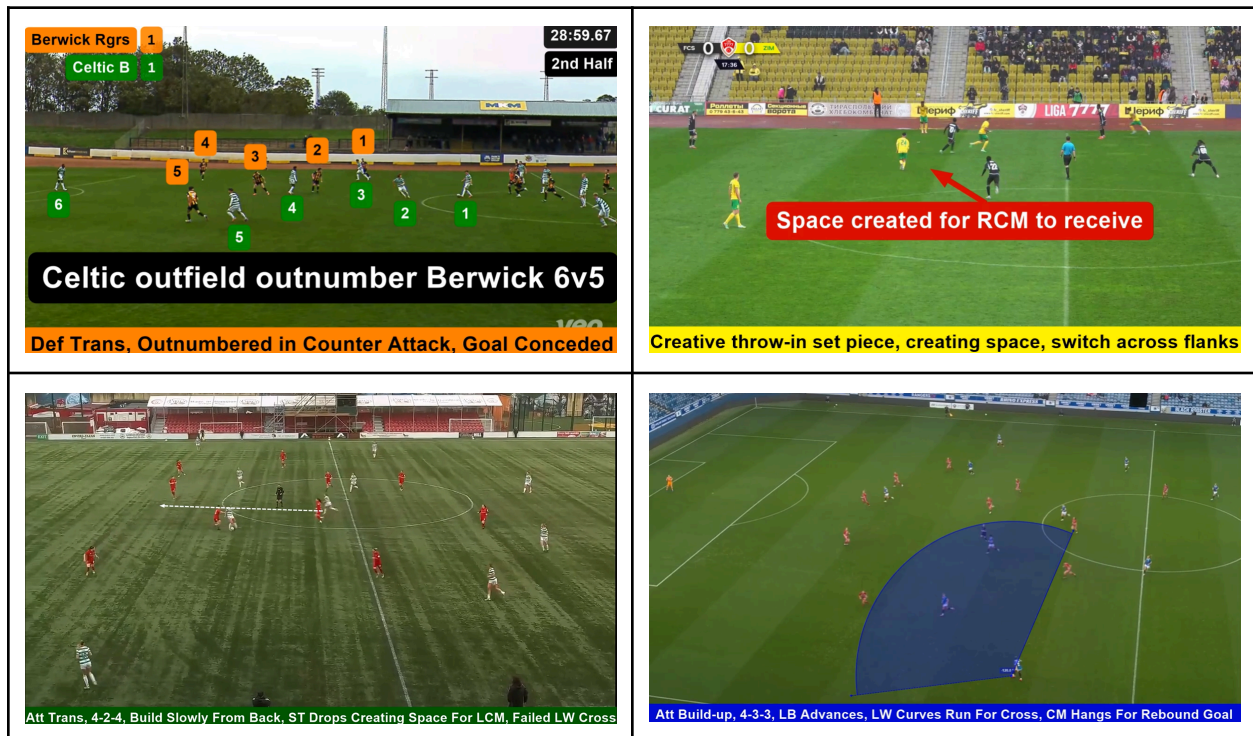
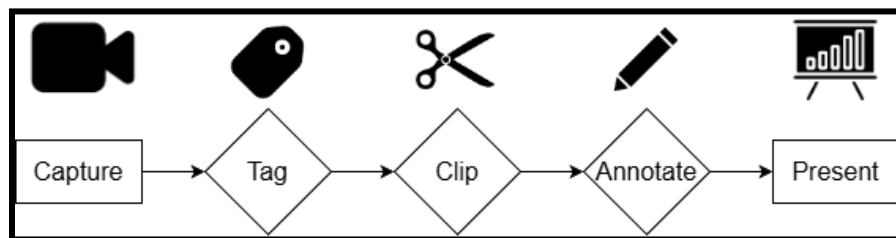
# Video & Post-Match Analysis Examples

Video analysis is an important supporting part of my workflow, particularly when contextualising data-led observations and presenting concise visual evidence to staff.

Using tagged footage and Wyscout/Veo clips, I build short annotated sequences that highlight patterns, player actions, and key moments clearly and efficiently.

A number of video examples from men's and women's matches can be [found here on YouTube](#) where I show how I present my analysis for short segments.

- Clips used to support scouting and reporting
- Annotations used to highlight shapes, spaces, and player actions
- Presentation kept concise enough to preserve context without losing attention



# Poisson-Based Football Probability Model

This long-running modelling project estimates match outcome probabilities across multiple leagues using a Poisson distribution. Statistics are season-long and can display trends and movements within team performance.

The model began in Google Sheets and covered around 100 leagues, before moving to a Python platform for improved scalability, automation, and processing speed.

Alongside expected scorelines and result probabilities, I developed a weighted form metric that places greater emphasis on recent fixtures to better capture short-term team movement over the season. The scoring ranges from zero (6 straight losses) to one (6 straight wins), which can be interpreted as a 0%–100% scale.

I have a small selection of leagues available [to view here on Google Sheets](#) from men's and women's football. To prevent scraping errors, leagues are likely not up-to-date and captured from a previous date.

| Team           | League | Index | GP | HGP | AGP | GF | HGF | AGF | OSTrength | HS    | AS    | GC | HGC | AGC | OWeakness | HW    | AW    | HomePower | AwayPower | Overall | Form  | AGS          |
|----------------|--------|-------|----|-----|-----|----|-----|-----|-----------|-------|-------|----|-----|-----|-----------|-------|-------|-----------|-----------|---------|-------|--------------|
| AFC Wimbledon  | Eng L1 | 2     | 45 | 22  | 23  | 51 | 25  | 26  | 0.871     | 0.752 | 1.028 | 68 | 27  | 41  | 1.162     | 1.068 | 1.233 | -0.316    | -0.205    | -0.290  | 0.222 | 58.542       |
| Barnsley       | Eng L1 | 3     | 45 | 22  | 23  | 67 | 38  | 29  | 1.144     | 1.143 | 1.147 | 70 | 34  | 36  | 1.196     | 1.344 | 1.083 | -0.201    | 0.064     | -0.051  | 0.430 | AGS by HT    |
| Blackpool      | Eng L1 | 4     | 45 | 23  | 22  | 53 | 35  | 18  | 0.905     | 1.053 | 0.712 | 65 | 29  | 36  | 1.110     | 1.147 | 1.083 | -0.094    | -0.371    | -0.205  | 0.844 | 33.250       |
| Bolton         | Eng L1 | 5     | 45 | 22  | 23  | 68 | 44  | 24  | 1.162     | 1.323 | 0.949 | 49 | 21  | 28  | 0.837     | 0.830 | 0.842 | 0.493     | 0.107     | 0.325   | 0.474 | AGS by AT    |
| Bradford       | Eng L1 | 6     | 45 | 23  | 22  | 56 | 32  | 24  | 0.957     | 0.962 | 0.949 | 50 | 17  | 33  | 0.854     | 0.672 | 0.992 | 0.290     | -0.044    | 0.102   | 0.444 | 25.292       |
| Burton Albion  | Eng L1 | 7     | 45 | 23  | 22  | 48 | 27  | 21  | 0.820     | 0.812 | 0.830 | 58 | 28  | 30  | 0.991     | 1.107 | 0.902 | -0.295    | -0.072    | -0.171  | 0.415 | AGS by HT pM |
| Cardiff City   | Eng L1 | 8     | 45 | 23  | 22  | 86 | 50  | 36  | 1.469     | 1.504 | 1.423 | 45 | 23  | 22  | 0.769     | 0.909 | 0.662 | 0.594     | 0.762     | 0.700   | 0.822 | 1.478        |
| Doncaster      | Eng L1 | 9     | 45 | 23  | 22  | 47 | 27  | 20  | 0.803     | 0.812 | 0.791 | 68 | 32  | 36  | 1.162     | 1.265 | 1.083 | -0.453    | -0.292    | -0.359  | 0.407 | AGS by AT pM |
| Exeter City    | Eng L1 | 10    | 45 | 22  | 23  | 51 | 29  | 22  | 0.871     | 0.872 | 0.870 | 59 | 27  | 32  | 1.008     | 1.068 | 0.962 | -0.195    | -0.093    | -0.137  | 0.393 | 1.124        |
| Huddersfield   | Eng L1 | 11    | 45 | 23  | 22  | 70 | 42  | 28  | 1.196     | 1.263 | 1.107 | 64 | 27  | 37  | 1.093     | 1.068 | 1.113 | 0.196     | -0.006    | 0.102   | 0.348 | Season Games |
| Leyton Orient  | Eng L1 | 12    | 45 | 22  | 23  | 57 | 30  | 27  | 0.974     | 0.902 | 1.068 | 69 | 28  | 41  | 1.179     | 1.107 | 1.233 | -0.205    | -0.166    | -0.205  | 0.096 | 552          |
| Lincoln City   | Eng L1 | 13    | 45 | 23  | 22  | 87 | 53  | 34  | 1.486     | 1.594 | 1.344 | 41 | 20  | 21  | 0.700     | 0.791 | 0.632 | 0.803     | 0.713     | 0.796   | 0.881 | Games so far |
| Luton Town     | Eng L1 | 14    | 45 | 23  | 22  | 65 | 37  | 28  | 1.110     | 1.113 | 1.107 | 54 | 24  | 30  | 0.922     | 0.949 | 0.902 | 0.164     | 0.205     | 0.188   | 0.881 | 540          |
| Mansfield      | Eng L1 | 15    | 45 | 22  | 23  | 57 | 33  | 24  | 0.974     | 0.992 | 0.949 | 46 | 23  | 23  | 0.786     | 0.909 | 0.692 | 0.083     | 0.257     | 0.188   | 0.548 | 97.83%       |
| Northampton    | Eng L1 | 16    | 45 | 22  | 23  | 37 | 21  | 16  | 0.632     | 0.632 | 0.633 | 71 | 28  | 43  | 1.213     | 1.107 | 1.293 | -0.476    | -0.661    | -0.581  | 0.000 | Home table   |
| Peterborough   | Eng L1 | 17    | 45 | 22  | 23  | 63 | 38  | 25  | 1.076     | 1.143 | 0.988 | 65 | 27  | 38  | 1.110     | 1.068 | 1.143 | 0.075     | -0.154    | -0.034  | 0.170 | 9            |
| Plymouth       | Eng L1 | 18    | 45 | 23  | 22  | 72 | 33  | 39  | 1.230     | 0.992 | 1.542 | 61 | 33  | 28  | 1.042     | 1.305 | 0.842 | -0.312    | 0.700     | 0.188   | 0.652 | https        |
| Port Vale      | Eng L1 | 19    | 45 | 22  | 23  | 36 | 17  | 19  | 0.615     | 0.511 | 0.751 | 59 | 23  | 36  | 1.008     | 0.909 | 1.083 | -0.398    | -0.331    | -0.393  | 0.444 | Away table   |
| Reading        | Eng L1 | 20    | 45 | 22  | 23  | 64 | 33  | 31  | 1.093     | 0.992 | 1.226 | 59 | 27  | 32  | 1.008     | 1.068 | 0.962 | -0.075    | 0.263     | 0.095   | 0.230 | 10           |
| Rotherham      | Eng L1 | 21    | 45 | 23  | 22  | 39 | 24  | 15  | 0.666     | 0.722 | 0.503 | 68 | 32  | 36  | 1.162     | 1.265 | 1.083 | -0.543    | -0.490    | -0.495  | 0.252 | https        |
| Stevenage      | Eng L1 | 22    | 45 | 22  | 23  | 48 | 26  | 22  | 0.820     | 0.782 | 0.870 | 46 | 13  | 33  | 0.786     | 0.514 | 0.992 | 0.268     | -0.123    | 0.034   | 0.578 | Form tables  |
| Stockport      | Eng L1 | 23    | 45 | 23  | 22  | 68 | 38  | 30  | 1.162     | 1.143 | 1.186 | 57 | 26  | 31  | 0.974     | 1.028 | 0.932 | 0.115     | 0.254     | 0.188   | 0.422 | 14           |
| Wigan Athletic | Eng L1 | 24    | 45 | 23  | 22  | 49 | 24  | 25  | 0.837     | 0.722 | 0.988 | 57 | 17  | 40  | 0.974     | 0.672 | 1.203 | 0.050     | -0.215    | -0.137  | 0.570 | Nation       |
| Wycombe        | Eng L1 | 25    | 45 | 22  | 23  | 66 | 42  | 24  | 1.127     | 1.263 | 0.949 | 56 | 21  | 35  | 0.957     | 0.830 | 1.053 | 0.433     | -0.104    | 0.171   | 0.170 | england3     |

**League One stats table (from before final gameweek 2025/26)**  
Lincoln City best overall score (0.786), Northampton worst overall score (-0.581)  
Lincoln City and Luton Town both claim best form (0.881)  
Plymouth Argyle best away attack (1.542), Rotherham best home defence (0.514)

Screenshot taken 02 May 2026

|                     |       |      |                                  |      |     |
|---------------------|-------|------|----------------------------------|------|-----|
| Plymouth            | 0.652 | Away | 2 Mayton - *h2hymout             | 17   | h2h |
| (Most recent) Win   | 2     | 6    | Home25 Aprth* - F*2:1*           | http | 2:1 |
| Draw                | 1.8   | 1.8  | Away21 Aprd - *Pl*1:1*ymoutam.as |      | 1:1 |
| Win                 | 1.6   | 4.8  | Away18 Apedon - *1:3*ymouth*     |      | 1:3 |
| Draw                | 1.4   | 1.4  | Home11 Aprh* - E*2:2*            | Fine | 2:2 |
| Win                 | 1.2   | 3.6  | Away6 Apry - *Pl*0:3*ymouth*     |      | 0:3 |
| (Least recent) Loss | 1     | 0    | Home3 Apruth* - *1:2*            |      | 1:2 |

 **Results**    
  **Multiplier**    
  **Result \* Multiplier = Scoring**

### Plymouth Argyle form explained

Form from least recent to most recent: LWDWDW

Fluctuating pattern of wins and draws recently, although their only loss was in their least recent game

Final form score: 0.652 (65.2%)

Screenshot taken 02 May 2026

| Game Number | Date and Time   | Team Name      | Expected Goals | 0      | 1      | 2      | 3      | 4     | 5     | 6     | HW        | Draw       | AW             |
|-------------|-----------------|----------------|----------------|--------|--------|--------|--------|-------|-------|-------|-----------|------------|----------------|
| 11          | Sat 2 May 15:00 | Stevenage      | 1.390          | 24.90% | 34.62% | 24.06% | 11.15% | 3.88% | 1.08% | 0.25% | Stevenage | X          | Wigan Athletic |
|             | Eng L1          | Wigan Athletic | 0.571          | 56.49% | 32.26% | 9.21%  | 1.75%  | 0.25% | 0.03% | 0.00% | 57.03%    | 27.66%     | 15.25%         |
|             |                 |                |                | 40.70% | 33.44% | 16.64% | 6.45%  | 2.06% | 0.55% | 0.13% | 1.75      | 3.61       | 6.55           |
|             |                 |                |                |        |        |        |        |       |       |       | 0.578     | Form       | 0.570          |
| 22          |                 | 24             | Score H/A      |        |        |        | Chance |       |       |       | 1.390     | xG         | 0.571          |
|             |                 | 130            | 0 - n          | 14.07% | 8.03%  | 2.29%  | 0.44%  | 0.06% | 0.01% | 0.00% | 75.04%    | Scoring    | 43.48%         |
|             |                 |                | 1 - n          | 19.56% | 11.17% | 3.19%  | 0.61%  | 0.09% | 0.01% | 0.00% | 56.46%    | CS         | 24.90%         |
|             |                 |                | 2 - n          | 13.59% | 7.76%  | 2.22%  | 0.42%  | 0.06% | 0.01% | 0.00% | 32.63%    | <-BTTS     |                |
|             | r - BTTS        | r - Nil        | 3 - n          | 6.30%  | 3.60%  | 1.03%  | 0.20%  | 0.03% | 0.00% | 0.00% | 42.39%    | Win to nil | 10.84%         |
| HW          | 14.64%          | 42.39%         | 4 - n          | 2.19%  | 1.25%  | 0.36%  | 0.07%  | 0.01% | 0.00% | 0.00% |           |            |                |
| D           | 13.59%          | 14.07%         | 5 - n          | 0.61%  | 0.35%  | 0.10%  | 0.02%  | 0.00% | 0.00% | 0.00% |           |            |                |
| AW          | 4.42%           | 10.84%         | 6 - n          | 0.14%  | 0.08%  | 0.02%  | 0.00%  | 0.00% | 0.00% | 0.00% |           |            |                |

### Stevenage vs Wigan Athletic match prediction

Predicted to be low-scoring but edged towards the home side

Stevenage in slightly better form (0.578 v 0.570)

A Stevenage 1-0 win has highest probability @19.56% (which was the final score)

Screenshot taken 02 May 2026

# Kinovea Angle Export

Kinovea is a free, open-source video analysis tool used widely across sport science and strength & conditioning to measure joint angles, analyse movement, and provide video-based technique feedback to athletes.

For my BSc Data Science Honours project, I contributed to the tool directly via GitHub, extending its CSV export so that frame-by-frame joint-angle measurements are saved alongside the existing coordinate data for further analysis in spreadsheet or statistical software. The patch was reviewed, merged into the main repository, and remains part of the Kinovea release today.

The poster below shows the pre-patch export (x/y coordinates only), in-app angle annotation, and the post-patch output (which adds the angle measurements).

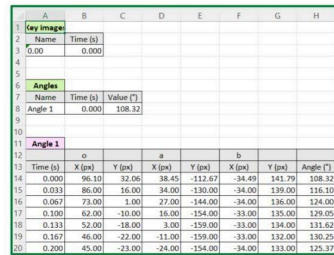
## Video Analysis of Limb Angle During Training

Michael Maclean  
BSc Data Science

**Kinovea**  
Staff within the University's sports department use a free software application called Kinovea.

Kinovea is an open-source video analysis tool which is used by athletes, coaches, and sport scientists around the world.

Staff find it frustrating that angle values are not included when Kinovea exports data to a spreadsheet file.



### Solution 1

I have created a graphical user interface (GUI) in Python which the staff can use as a secondary tool alongside Kinovea. This GUI will allow the user to upload videos and spreadsheet files so the angle values can be amended. They will also be able to view a view with angle overlay and graphs relevant to their data.

### Solution 2

Given Kinovea is open-source software available on GitHub, I have written code in C# which fixes the issue directly at the source.

My pull request was accepted by the Kinovea admin and will now provide angle measurements to all spreadsheet exports.

stir.ac.uk For further information contact: Michael Maclean

BE THE DIFFERENCE

Dissertation poster presentation