


# ROCKET SCIENCE



## OVERVIEW

Introducing a suite of software applications, aimed to elevate live broadcasting for pocket billiards. Tentatively named "Rocket Science", it's primarily intended to provide commentary tools to increase production value. The software also facilitates improvements across multiple other facets of the game, including:

- 1) **Commentary Diagramming Engine:** An interface operated by the commentary analyst, providing innovative graphical diagramming tools, with the intent of educating the viewer. All diagrams are animated and composited under the player, balls, and corresponding shadows, but on top of the cloth.
- 2) **Real-time Statistics:** All properties of each shot are catalogued into an extensive dataset from which custom algorithms can extract almost any statistic imaginable. Useful for pre and post-game analysis, online betting lines, and fantasy sports.
- 3) **Predictive Shot Probability:** Offers the ability to calculate and display the probability of the player pocketing the current shot, live as it happens.
- 4) **Fantasy Sports:** Fantasy sports have grown to rival the size and scope of many professional sporting entities. Our statistical engine easily enables a fantasy sports platform for billiards, drastically increasing viewer engagement and retention.

The software referenced in this document was designed for the Premier Billiard League, which is a proof of concept 9-ball league for professional pool. As such, the software is currently programmed specifically for 9-ball, and integrated with all our other existing systems. With some effort, the forementioned features can be isolated and adapted for snooker, and then fully customized as per Eurosport's specifications.




## COMMENTARY DIAGRAMMING ENGINE

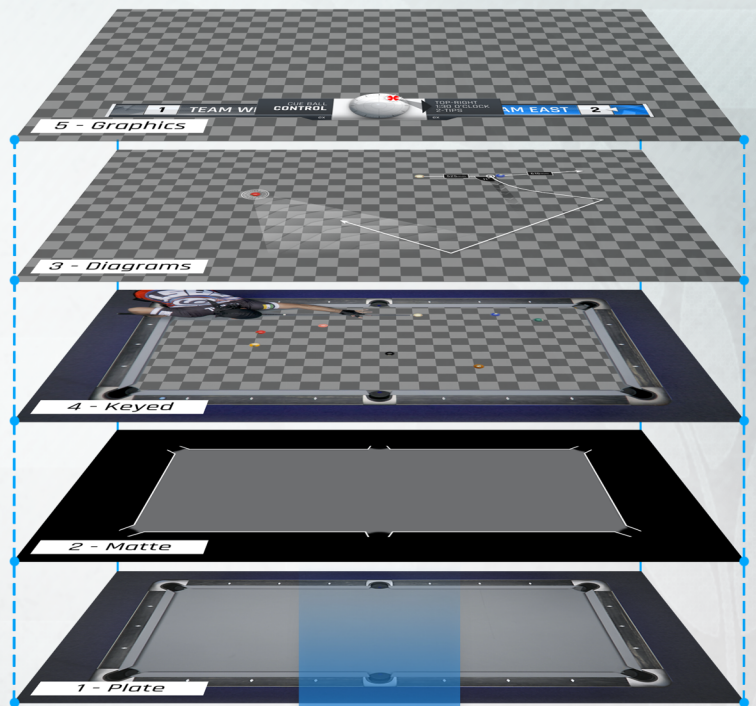
Viewers are more easily retained if they can grasp the extreme skill required to play the game at the highest level. This can be more easily achieved by properly educating the viewer. Unfortunately, current billiard productions lack the necessary tools to do so in an efficient manner.

Our commentary diagramming engine changes this. It offers the commentary team the necessary tools to quickly and effectively demonstrate key shot properties, using sleek animated diagrams.

Diagramming options include the distances and angle of the shot (all auto-calculated), natural and anticipated path of the cue ball for position play, the ideal angle to approach the next shot, etc. Additionally, an animated cue ball can be folded out of the score ticker, visually demonstrating the contact point on the cue ball required to execute the intended shot.

All diagrams are animated and composited in real-time using our proprietary layering system. The diagrams are placed under the player, balls, and corresponding shadows, but on top of the cloth. This provides a modern and elegant solution that serves to educate the viewer, potentially captivate a new audience, as well as increase overall production value.

 video sample: [runoutmedia.com/eurosport1.mp4](http://runoutmedia.com/eurosport1.mp4)





## REAL-TIME STATISTICS

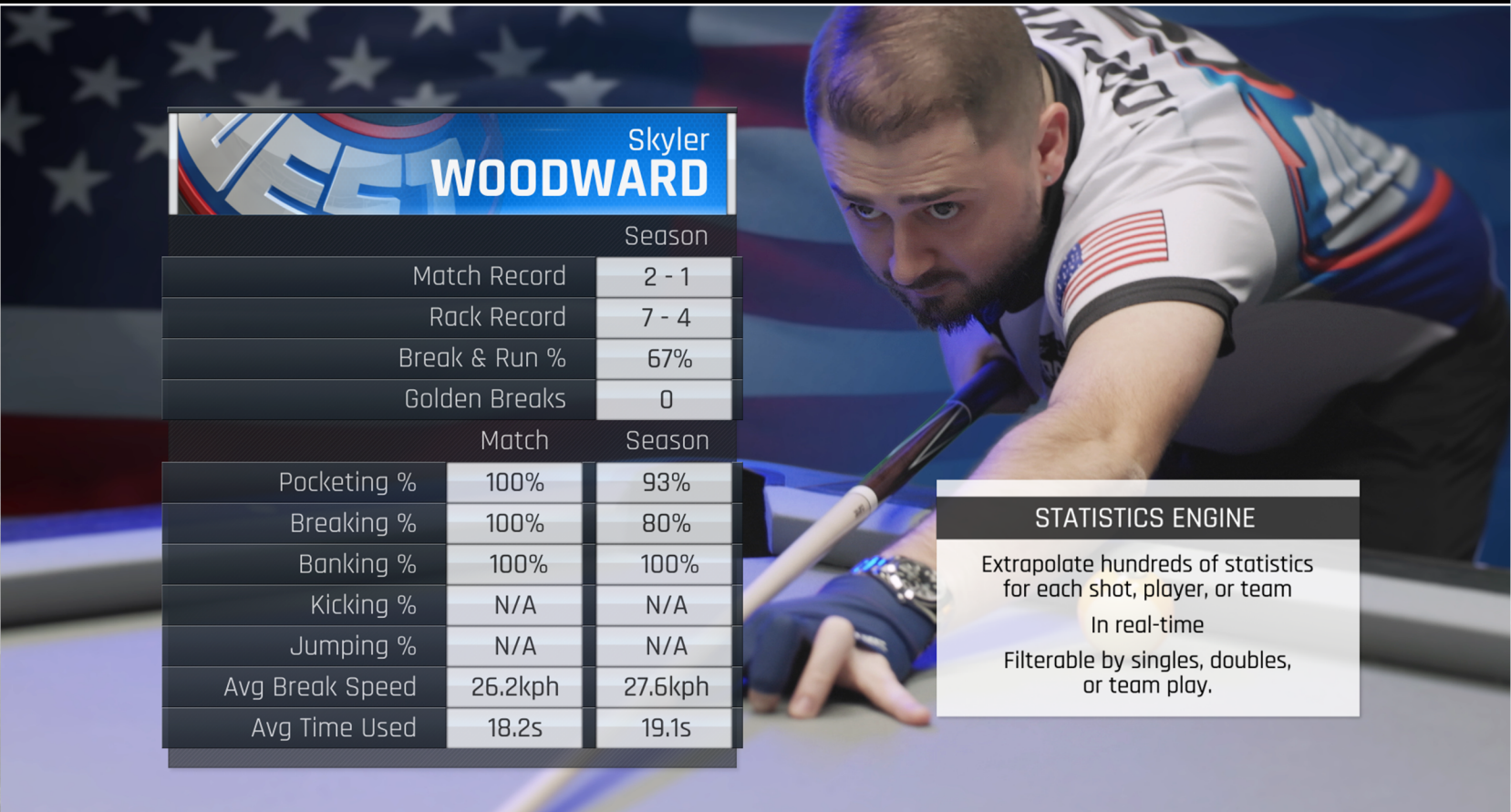
After each shot, the software records a vast number of shot properties into a database. Such properties include the active player, current score, the position of the cue ball, object ball, and intended pocket, all related distances and angles, time used, shot outcome, etc. This creates an extensive data set of all shots played since the inception of the software.

From this dataset, a series of algorithms are able to extrapolate hundreds of pertinent statistics. The algorithms can later be modified or expanded to extract new additional statistics, whereupon all existing data will be repropagated in order to reflect the changes.

Examples of statistics include accuracy for pocketing, doubles, kicking, average points per run, average points per game, time taken per shot, etc. Statistics can then be used for betting lines, player performance in pre or post-game analysis, or fantasy sports.

The system offers a very expansive and flexible method of generating data, that is easily expanded or modified as needed.

 video sample: [runoutmedia.com/eurosport2.mp4](http://runoutmedia.com/eurosport2.mp4)



Skyler <b>WOODWARD</b>		Season
Match Record		2 - 1
Rack Record		7 - 4
Break & Run %		67%
Golden Breaks		0
		Match
		Season
Pocketing %	100%	93%
Breaking %	100%	80%
Banking %	100%	100%
Kicking %	N/A	N/A
Jumping %	N/A	N/A
Avg Break Speed	26.2kph	27.6kph
Avg Time Used	18.2s	19.1s

### STATISTICS ENGINE

Extrapolate hundreds of statistics for each shot, player, or team

In real-time

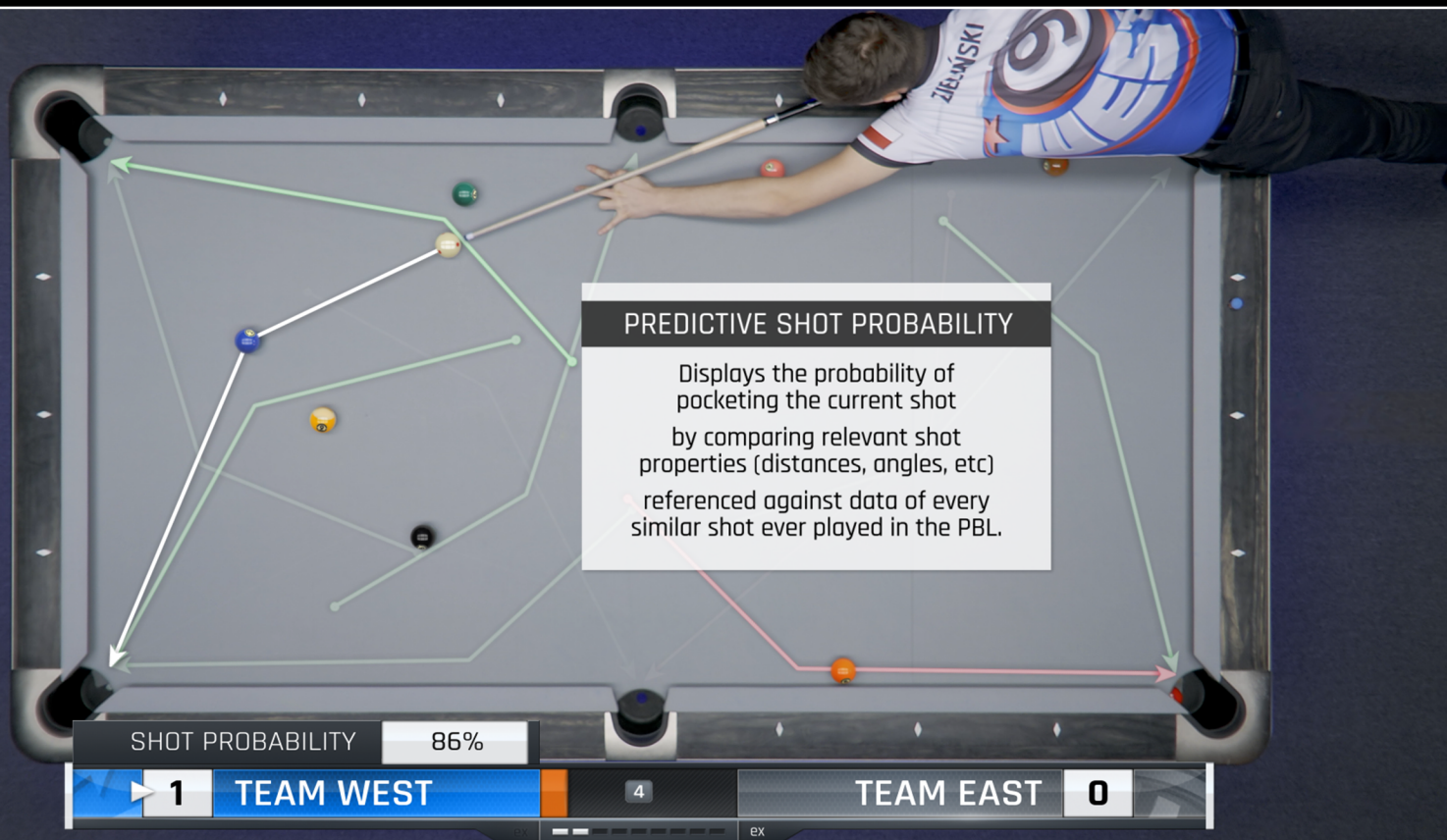
Filterable by singles, doubles, or team play.

## PREDICTIVE SHOT PROBABILITY

As the active player assesses the current table layout, an additional user interface within the software can be used to input the position of the cue ball, the intended object ball, and the intended pocket. The software then automatically calculates the angle of the shot and distances between the cue ball, object ball, and pocket.

That data is then compared against the data set of all previously played shots, in turn generating a





percentage-based probability that the active player will successfully pocket the intended ball. That probability can then be displayed on screen for viewers.

As the database is populated with more data, the threshold used to compare the shots can be reduced to improve accuracy. With sufficient data, the potential use cases for the system becomes even more diverse. For instance, the current shot probability could be narrowed to compare only the current player's probability, rather than the league average. This would enable the ability to identify a specific player's particular strength or weakness, useful for not only the viewing audience, but also the players themselves.

 video sample: [runoutmedia.com/business/eurosport3.mp4](http://runoutmedia.com/business/eurosport3.mp4)

## FANTASY SPORTS

Fantasy sports have grown to rival the size and scope of many professional sporting entities, helping to increase viewer engagement and interactivity. For any modern sporting league, the inclusion of fantasy sports has become a near necessity.

Our statistical database, combined with a mobile app or website, easily enables a fantasy sports platform for billiards. We've created two individual leagues as proof of concepts, intended to cater to both beginners and enthusiasts, complete with ranking leaderboards and prize pools (provided by a fantasy league sponsors). A similar fully customized system could be easily applied to snooker at a later date.

