

Electronic Sports: Winner Prediction

Hao Ding

Department of Statistics

University of Connecticut

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Abstract

Here is the abstract.

1 Introduction

PUBG (PlayerUnknown's Battlegrounds). PUBG is a popular online multiplayer battle royale game developed and published by PUBG Corporation, a subsidiary of South Korean video game company Bluehole. It was inspired by the Japanese film "Battle Royale" and released in March 2017.

In PUBG, up to 100 players parachute onto an island and scavenge for weapons and equipment to eliminate others while avoiding getting eliminated themselves. The game features a shrinking play area that forces players into closer proximity, creating intense encounters. The last player or team standing wins the match.

PUBG gained immense popularity shortly after its release, contributing to the rise of the battle royale genre in gaming. The game is available on various platforms, including PC, Xbox, PlayStation, and mobile devices. PUBG Corporation has also organized esports events, such as the PUBG Global Championship, where professional players and teams compete for significant prizes.

Our goal is to analyze this dataset to figure out which specific factors or behaviors lead to more kills or longer game life, which leads to player wins.

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A lot of work has been done (e.g., [Xie, 2015](#)). Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris. Some parametric bootstrap sample size approach was proposed by [Dwivedi et al. \(2017\)](#).

The rest of the paper is organized as follows. The data will be presented in Section [2](#). The methods are described in Section [3](#). The results are reported in Section [4](#). A discussion concludes in Section [5](#).

2 Data

Data from the PUBG Developer API, it is a official game data. There are over 65,000 games recorded in this database.

Assists - Number of enemy players this player damaged that were killed by teammates.

Boosts - Number of boost items used. Revives - Number of times this player revived teammates. Heals - Number of healing items used. Damage Dealt - Total damage dealt. Note: Self inflicted damage is subtracted. TeamKills - Number of times this player killed a teammate. Kill Place - Ranking in match of number of enemy players killed. kills - Number of enemy players killed. Ride Distance - Total distance traveled in vehicles measured in meters. Swim Distance - Total distance traveled by swimming measured in meters. Walk Distance - Total distance traveled on foot measured in meters. Weapons Acquired - Number of weapons picked up. Match Duration - Duration of match in seconds. Win Place Perc - This is a percentile winning placement, where 1 corresponds to 1st place, and 0 corresponds to last place in the match.

3 Methods

Use this section to present the methodologies that will generate results by analyzing the data. Suppose that the radius of a circle is r . Then its area is

$$\pi r^2. \tag{1}$$

Equation (1) is interesting. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

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Sometimes I don't want an equation to be numbered such as this one:

$$f(x) = \frac{1}{\sqrt{2\pi}} \exp\left(-\frac{x^2}{2}\right),$$

which is the density of a standard normal variable.

4 Results

Table 1 summarizes some example draws from some distributions. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetur id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

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Table 1: This is my first table.

normal	poisson	gamma
-0.110	4	2.401
0.116	4	3.529
-0.828	9	2.112
-0.066	6	11.104
0.219	3	4.815
0.303	5	2.188
0.544	0	8.050
-2.617	8	3.646
0.747	1	5.178
-1.103	4	3.043

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Figure 1 shows the distance against the speed from this dataset.

5 Discussion

What are the main contributions again?

What are the limitations of this study?

What are worth pursuing further in the future?

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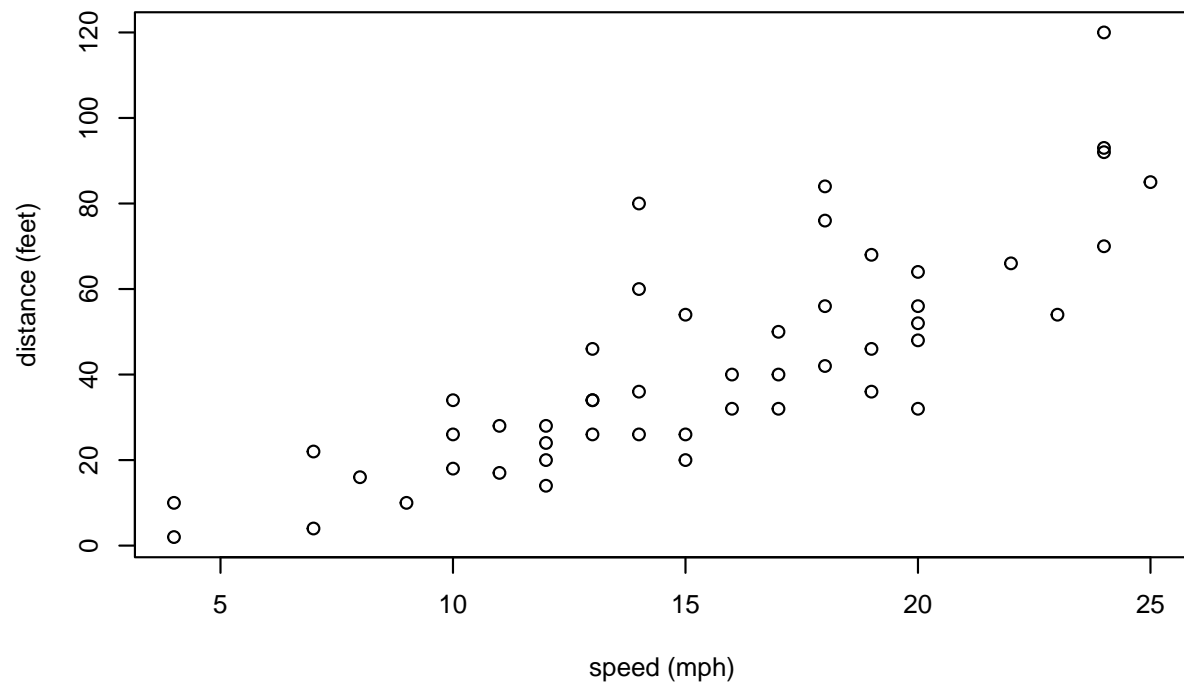


Figure 1: This is my first figure.

References

- A. K. Dwivedi, I. Mallawaarachchi and L. A. Alvarado (2017). “Analysis of small sample size studies using nonparametric bootstrap test with pooled resampling method.” *Statistics in Medicine* **36**, 2187–2205.
- S. Wild, G. Roglic, A. Green, R. Sicree and H. King (2004). “Global prevalence of diabetes: Estimates for the year 2000 and projections for 2030.” *Diabetes Care* **27**, 1047–1053.
- Y. Xie (2015). *Dynamic Documents with R and knitr*. Boca Raton, Florida: Chapman and Hall/CRC, 2nd edition. ISBN 978-1498716963.