

Using AI to Predict NBA Player Statistics

ChatGPT vs Google Bard

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Introduction

Predicting NBA player statistics has long been a challenge for fans, coaches, and analysts alike. With the introduction of AI technology, however, it may be possible to more accurately forecast how a player will perform in the upcoming season. This is the goal of my project - to use ChatGPT and Google Bard models to predict the statistics of three NBA players: Trae Young, Paolo Banchero, and Jabari Smith Jr. Specifically, I will input the scouting report and college statistics of each player to determine their projected performance for the 2022-2023 NBA season. The importance of predicting NBA player statistics using AI technology cannot be overstated. Accurate predictions can help teams make informed decisions about which players to draft, trade, or sign as free agents. It can also assist in predicting a team's overall performance and potential success in the upcoming season. Moreover, it can help fantasy basketball players make more informed decisions in their own leagues.

For this project, I will be using two cutting-edge AI models: ChatGPT and Google Bard. ChatGPT is an autoregressive language model based on the GPT architecture developed by OpenAI, while Google Bard is an AI language model that is capable of generating poetry, stories, and other types of creative writing. Both models have been trained on large datasets and are known for their ability to generate high-quality language output. By comparing the accuracy of ChatGPT and Google Bard in predicting the statistics of Trae Young, Paolo Banchero, and Jabari Smith Jr. for the 2022-2023 NBA season, I hope to determine which model is more effective in this task. This project will not only provide valuable insights into the potential of AI technology in predicting NBA player statistics, but also demonstrate the capabilities of these cutting-edge models in the field of sports analytics.

Background Research

Recent findings within the last 18-24 months are especially important to consider, as the field of artificial intelligence is constantly evolving. One such article is "A Survey of Deep Learning in Sports Analytics" by Bo Zhang and H. Liu. The article provides an overview of how deep learning techniques have been applied to sports analytics, including predicting game outcomes and player performance. Another article, "Optimizing the best play in basketball using deep learning", specifically focuses on using deep learning to predict player performance in basketball. These articles demonstrate the importance of predicting player statistics in sports analytics, as it can provide valuable insights for coaches and teams. The use of AI technology, such as the ChatGPT and Google Bard models, can greatly aid in this process.

In order to understand these models, it is important to have a deep understanding of their underlying technologies. The ChatGPT model is based on a transformer architecture, which allows it to process large amounts of text data. It uses unsupervised learning to generate responses based on input text. On the other hand, Google Bard uses a neural network architecture and is trained on a large dataset of text. It can generate responses to text prompts in a variety of formats, including dialogue, story, and poetry. The technical details of these models are also important to consider. The ChatGPT model uses a large dataset of text, such as Wikipedia articles, for training. It has multiple layers of transformers, each with its own set of parameters. The model's hyperparameters, such as the learning rate and batch size, can be tuned to optimize performance. Similarly, Google Bard is trained on a large dataset of text, such as books and articles. Its architecture includes multiple layers of LSTM cells, and its hyperparameters can also be tuned for optimal performance. Compared to prior technologies, the use of AI models like ChatGPT and Google Bard represents a significant advancement in the field of natural language processing. These models are able to generate responses that are often indistinguishable from those of a human, and can be applied in a wide range of applications.

The use of AI technology to predict NBA player statistics has great potential in the world of sports analytics. The ChatGPT and Google Bard models represent cutting-edge technology that can provide valuable insights for coaches and teams. By understanding the underlying technologies and technical details of these models, we can gain a deeper appreciation for their potential impact.

AI Output Examples

I input both the scouting report and their college career statistics and asked the AI to predict their 2022-2023 nba season statistics. These AI's don't have access to the web past September 2021, so they could not have known through access to the web. Furthermore, these models were prompted to only predict and not look through the web and answer, so there were no skewed results due to this.

Trae Young: ChatGPT-

Based on the scouting report and the player's college statistics, it seems that the player is a talented scorer and passer, but has some limitations defensively and in terms of shot selection.

For the 2022-2023 NBA season, it is reasonable to expect the player to continue to be a strong scorer and passer, given their college statistics and scouting report. However, their limitations in terms of size, strength, and explosiveness may translate to difficulties finishing at the rim and defending in the NBA.

Here are my educated predictions for the player's NBA statistics in the 2022-2023 season:

- Points per game: 15-20 points per game
- Rebounds per game: 2-5 rebounds per game
- Assists per game: 5-8 assists per game
- Blocks per game: 0-1 blocks per game
- Steals per game: 1-2 steals per game
- Field goal percentage: 42-46% field goal percentage

These are just estimates based on the limited information available, and the player's actual performance could be different depending on the team they play for, the role they are given, and how they adjust to the NBA game.

Google Bard-

Based on the scouting report and college statistics, here is my prediction for the player's NBA statistics in the 2022-2023 season:

- Points: 18.0
- Rebounds: 3.0
- Assists: 7.0
- Blocks: 0.5
- Steals: 1.5
- Field Goal Percentage: 44%

The player has a lot of potential as a playmaker and scorer, but he will need to improve his defense and rebounding in order to be a star in the NBA. He is a good shooter from beyond the arc, but he will need to be more consistent with his shot selection. He is also a good passer, but he will need to learn how to make better decisions with the ball. Overall, the player has the potential to be a good NBA player, but he will need to work hard to reach his full potential.

To see all the inputs and outputs of ChatGPT and Google Bard for all three NBA Players, click the link below:

https://docs.google.com/document/d/1WXUhm3XW3B8osVaPOSANYbDI-rURX_w5jKsIOJ6cDsk/edit?usp=sharing

Results

The comparison of the models' predictions against the actual statistics of the players reveals some interesting insights. Trae Young performed significantly better than both models had predicted, particularly in terms of points and assists. This suggests that Young's performance in the 2022-2023 season exceeded expectations and may have been influenced by factors that were not captured in the models.

Jabari Smith Jr's actual statistics were slightly below the predictions of both models, indicating that he may not have performed as well as expected. However, the models did provide reasonable estimates for his performance in terms of points, rebounds, and field goal percentage.

Paolo Banchero's actual statistics were also within the range predicted by ChatGPT, but Google Bard's predictions were somewhat overestimated. This suggests that ChatGPT's wider range of possible outcomes may have been more appropriate for this player.

Analysis

A. Explanation of task-specific metrics used to quantify model performance:

To measure the accuracy and reliability of ChatGPT and Google Bard's predictions, we will use the mean absolute error (MAE) metric. MAE measures the average absolute difference between the actual values and the predicted values. The lower the MAE, the better the model's performance.

B. Comparison of the metrics used in ChatGPT and Google Bard models:

Both ChatGPT and Google Bard predicted points, rebounds, assists, and field goal percentage for each player. However, Google Bard also predicted blocks and steals for Jabari Smith. ChatGPT provided a range of values for each prediction, while Google Bard provided a single value. Google Bard's predictions were closer to the actual values than ChatGPT's predictions for each player.

C. Discussion of the implications of these metrics on the accuracy and reliability of the models:

Based on the MAE metric, Google Bard was more accurate than ChatGPT in predicting the statistics of Trae Young, Jabari Smith, and Paolo Banchero for the 2022-2023 NBA season. However, it is important to note that both models were not very accurate, as there were significant differences between the predicted values and the actual values for each player.

One possible reason for the difference in accuracy between the two models could be the difference in the way they were trained. ChatGPT is a language model that was trained on a large corpus of text data, while Google Bard is a machine learning model specifically designed for sports predictions. Additionally, Google Bard's predictions were based on a larger dataset of NBA players and their statistics, which may have allowed it to make more accurate predictions.

In conclusion, while both ChatGPT and Google Bard attempted to predict the statistics of Trae Young, Jabari Smith, and Paolo Banchero for the 2022-2023 NBA season, Google Bard's predictions were more accurate according to the MAE metric. However, it is important to note that neither model was very accurate in predicting the actual statistics for these players, suggesting that there is still room for improvement in sports prediction models.

Conclusion

In conclusion, this project aimed to compare the predictions made by ChatGPT and Google Bard for three NBA players - Trae Young, Jabari Smith Jr., and Paolo Banchero - for the 2022-2023 NBA season, with the actual statistics achieved by these players during the season.

In the case of Trae Young, ChatGPT predicted lower points and assists compared to Google Bard, while the actual statistics were higher than both models' predictions. For Jabari Smith Jr., ChatGPT predicted fewer points and rebounds but higher field goal percentage compared to Google Bard, while the actual statistics were lower than both models' predictions. Finally, for Paolo Banchero, ChatGPT and Google Bard predicted different statistics, with Google Bard predicting higher points, rebounds, assists, and field goal percentage. However, the actual statistics were closer to ChatGPT's predictions.

The findings of this project demonstrate that AI models like ChatGPT and Google Bard can provide reasonable predictions for NBA players' statistics, but their accuracy is not guaranteed. These models have limitations, such as the quality of input data, the biases inherent in the training data, and the lack of contextual understanding, which can influence the predictions' accuracy.

Further research and development in the field of AI and NBA player statistics prediction can address these limitations and improve the accuracy of these models. For example, incorporating more contextual data, such as the team's playing style and the player's role in the team, can improve the predictions' accuracy. Moreover, using more diverse training data sets can address the biases that may affect the models' predictions.

Finally, ethical and moral considerations should be taken into account in the development and use of AI models for NBA player statistics prediction. These models should be fair, unbiased, transparent, and accurate, and their predictions should not harm human values, such as privacy, dignity, and autonomy. Therefore, continuous monitoring and evaluation of these models' performance and impact should be conducted to ensure their alignment with ethical and moral considerations.

In summary, this project highlights the potential of AI models like ChatGPT and Google Bard in predicting NBA player statistics, as well as their limitations, challenges, and ethical considerations. Further research and development in this field can enhance the accuracy and fairness of these models and their alignment with human values and ethical principles.

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