Team23 Peer review reply

1. There are existing papers on this topic online. Could you explain what your contribution is? Do you have any ideas that go beyond the existing work?

Ans: This is our distribution temporary:

游松澤, 曾柏勳: collecting datasets
楊立慈, 賴允中: data visualization
游松澤: researching related works
蕭以勝: designing model architecture

We have reviewed relevant literature on this topic, which has provided a foundation for our project. We will try to improve data processing by refining how the data is prepared and structured, and hope to increase accuracy.

2. I think the idea of including other features like weather is suitable. However, I'm curious about how to collect this data. From what I see, the website seems to focus more on player performance. Is weather information also included in the MLB Statcast data?

Ans: You are correct in that there's no weather data available in the MLB Statcast data, but we found a website called Swish Analytics, and it includes weather details like conditions, temperature, feels-like temperature, precipitation chance, wind speed, and wind direction for each MLB ball game (link: https://swishanalytics.com/mlb/weather). Our plan is to use Python to scrap the data from there and use it for our dataset.

3. What exactly are you going to predict? If you're predicting the pitch type, f1-score shouldn't be a suitable way of validation. If you're simply predicting whether the ball will be hit or not, we don't think it's a question that can be predicted easily like that.

Ans: We are going to predict pitch type, and we think that F1 score can be applied on multiple classification.

4. After reviewing your proposal video, I think the idea of predicting the next pitch is very interesting. As you mentioned, this is a great topic for machine learning. My question is about the complexity of the data you plan to use in your model and how you will evaluate a pitcher's performance, especially on days when they struggle with control and throw pitches outside the catcher's target zone. I think there will be a big challenge in obtaining the essential data needed for accurate pitch predictions, otherwise, there is no point in using machine learning to do it, just using statistical data to predict the probability of the next pitch. My suggestion is that maybe focus on small numbers of players, for example, you can choose some pitchers from teams that are going to the World Series to predict. You can use the data from this season and the postseason before the World Series, and check whether your prediction works in the World Series games. This can make data collection easier. As I mentioned on top, maybe you can add Naïve Bayes to represent the statistical way to do it and prove that RNN has a higher accuracy of predicting.

Ans: Thank you for bringing up such detailed and constructive questions. First, our goal is not to evaluate a player's overall performance, but rather to predict the type of pitch they will throw next.

Secondly, we suspect that the pitch type a pitcher chooses next may be influenced by in-game factors, such as the outcome of the previous pitch, which aren't easily captured through statistical data alone. However, you're right—identifying which data points are most relevant is indeed challenging.

For our training dataset, we plan to use data from two or three pitchers with distinct styles, such as Yu Darvish (with over ten pitch types) and a relief pitcher who has a simpler pitch selection. As for the testing dataset, we intend to use data from regular-season games, considering that some players' performance can differ significantly in high-stakes games like playoffs and world series.

Finally, your suggestion to add a control group is excellent. We may try it if we have enough time.

5. The pitch prediction proposal using RNN is well-organized, with a clear division of tasks and a solid understanding of RNNs for sequential data. The approach is feasible, but it could benefit from more detail on addressing overfitting and optimizing the model's performance.

Ans: Thank you for your appreciation.

6. The proposal is comprehensive—great job! Have any previous studies also used Statcast data for predictions? It might be helpful to compare your prediction results with those from similar research.

Ans: Yes, some previous studies have used stacast data for predictive modeling in similar contexts, these prediction results with those studies would indeed provide a valuable benchmark.