**Table Tennis Shot Maps from a Player Perspective**

**Summary**

In the manuscript, the authors explores and innovates a new shot map visualization scheme for table tennis batting from the perspective of players. Focus on the player's hitting pattern and performance in the pivot area, which is used to analyze the player's weak spots to further develop or adjust the game strategy. Although the problem discussed and addressed in this work is very interesting, the completion of the requirements and the description in the case studies are not sufficient. Meanwhile, the motivation and contribution of the work are very vague. Consequently, significant revisions are required before this manuscript can be considered for publication.

**Strength**

This manuscript exhibits several noteworthy advantages:

1. At the beginning of the manuscript (Sec.2), the author details some definitions of table tennis and the importance of understanding the pivot area. It is very helpful to elaborate on the motivation of this work. The problem discussed and solved in the manuscript is indeed a very interesting topic, and is widely concerned in the field of table tennis.

2. Regarding the relevant literature (Sec.3), the manuscript provides a comprehensive and detailed summary of racket sports data visualization and analysis. The contribution of each piece of related work and its relevance to this work are described in detail.

3. This work is fully open-sourced, including the datasets and implementation of visualization and relevant interactions. The implementation of features in open source projects is also very comprehensive. At the same time, as stated in Sec.8.2, this work has a high degree of applicability and can bring inspiration to other sports analysis.

Overall, these advantages contribute to the manuscript's strengths and highlight its innovative approach and potential impact.

**Negatives**

This manuscript does have several drawbacks that need to be addressed:

1. Sec. 2 provides a thorough explanation of the background and the importance of pivot analysis in table tennis, which is commendable. However, it seems that there is room for enhancing the clarity regarding the innovative aspects and the unique contributions of this work. This would help in making a more compelling case in the context of the subsequent case analysis, thereby solidifying the overall impact of the study.

2. In Sec 3.2, the authors specifically mention the differences between this work and Tac-anticipator, which this work mainly focuses on and solves the analysis of the player's batting behavior in the reaction phase. However, it is difficult to directly illustrate that the visual design in this work can be used to judge the behavior of players during the reaction phase due to the case studies and expert evaluations. At the same time, the authors can also consider and discuss why Tac-anticipator cannot be used to analyze batting behavior analysis for reaction phase.

3. When hitting the ball, players need to consider the direction of the ball in addition to whether the position of the landing point is in the forehand area or the backhand area. When modeling and visual encoding, this article only considers the position of the drop point, and neglects the direction of the ball. Considering the direction of the ball is necessary to make the correct judgment of the shot.

4. The readability of the visual design is not good. The clustering effect is somewhat confusing. At the same time, there is no use of “Absolute Bounce Positions” in case studies, and there are many other features (shown in the open-source project) that are not clearly described in the manuscript.

5. Player A in Case #1 and #2 is left-handed, but this is not clearly stated in the case study's narrative, leaving the reader confused when reading the forehand and backhand areas. At the same time, can the visualization increases the personalized design of athletes with different hitting habits?

6. Case #3 is difficult to verify R3 and it is impossible to prove the comparison between different players. With Figure 6, there is no significant change in the same player's similar performance, and it is difficult to spot some insights. Hopefully, some detailed cases can be better designed to verify R3.

Addressing these drawbacks will significantly improve the clarity, validity, and overall quality of the manuscript.

**suggestions**

Based on the drawbacks, here are a few suggested revisions:

1. In order to articulate and unambiguously the motivation for this work, it is hoped that more domain experts could be invited to give more advice. At the same time, it would enhance the abstract to more explicitly articulate the underlying motivation.

2. It is hoped that the incoming direction can be added to the design of the visualization. At the same time, a detailed description of the visual design could also improve the reader's understanding.

3. There is only one domain expert invited in this work, which is not enough for the motivation analysis and subsequent validity verification. It is advisable to invite other experts to give more comprehensive advice and feedback.

4. It is recommended to design more detailed and comprehensive case studies to demonstrate that the work fulfills the requirements mentioned in Sec.4.2. In particular, the visual design of this work should be used to analyze the batting behavior of the reaction phase and the comparisons of batting behavior between different players and at different times.When designing the case study, players’ receiving habits should also be considered for better narrative.

5. Some minor issues, such as language expression and narrative logic, here are a few examples:

- “Revealing this pivot are is often a complicated because it is based on many factors and is unique unique to each player; ….” This sentence has double “unique”.

- “it depends on their waiting position, depending on whether they tend to wait more for forehands or backhands.” This statement is somewhat confusing and ambiguous.

Please note that these suggestions aim to enhance the clarity and logical coherence of the manuscript. Further refinement and elaboration of these points will significantly elevate the quality and impact of the work.

**rating**

Score for this manuscript: 2.5/5