

## **Answering Reviewers**

### **Reviewer #1:**

In this study, the authors developed a deep learning model based on MRI and could predict multiple firings in double-stapled colorectal anastomosis. The authors did a great job of disseminating their findings. The manuscript is thorough, insightful, and well-written. The authors noted that an ethical committee had approved their work, and they took informed consent from patients. This kind of study is essential to assist doctors in making decisions. Due to the growing number of patients per doctor, it is often challenging for doctors to monitor all test results. The authors analyzed and used data from 328 patients. The inclusion and exclusion criteria were clear. They also compared their work with recent similar studies. The manuscript's structure is decent, but the research gap and the need for this solution need to be more convincing. The study should include more related work on this application and approach. Also, the author did not provide any hypothesis behind choosing the detection model. Finally, authors should use proper citations instead of URLs in the body of the manuscript, and a few minor grammar issues need to be addressed.

### **Point-by-point response:**

Thank you for your precious comments and suggestions for our manuscript. Following your recommendations, we have described in detail the research gap and the need for this solution in the introduction. We also referred to more related work on this application and approach in this part. As for the hypothesis behind choosing the detection model, we referred to the 2017 proceedings of the IEEE international conference on computer vision [ref 24] to choose the

Mask region-based convolutional neural network (Mask R-CNN) to detect and segment the three target regions (as seen in Supplementary Figure 2). The authors stated that the detection model is conceptually simple and flexible, and efficiently detects objects in an image while simultaneously generating a high-quality segmentation mask for each instance. Moreover, Mask R-CNN outperforms all existing, single-model entries on every task, including the COCO 2016 challenge winners. We developed these arguments in the discussion. Finally, we changed the citation format of URLs and inserted them in the footnote.

**Reviewer #2:**

This study suggests that clinical or imaging information alone is insufficient to predict the usage of  $\geq 3$  cartridges during surgery and an MRI-based integrated deep learning model might help determine the best anastomotic strategy for mid-low rectal cancer patients. Compared with other similar studies, this study shows obvious advantages and has greater clinical application value.

**Point-by-point response:**

We are very pleased that you gave us a positive comment on our study and its clinical application value. We have polished the language and we hope that the revised manuscript will meet your approval. Thank you very much.

**Reviewer #3:**

1- In my opinion, the abstract is too cumbersome and is hard to catch the key point. The

keywords need to be more detailed. 2- In the Introduction part, the new features of the proposed method and the main advantages of the results over others should be clearly described. 3- An introduction should clearly highlight the motivation, problem statement, the objective of the paper, gap in the existing research and the novelty of the conducted research. 4- The contributions presented in this paper are not sufficient for possible publication in this journal. I highly suggest authors to clearly define the contributions. 5- The literature has to be strongly updated with some relevant and recent papers focused on the fields dealt with the manuscript. 6- The proposed method and experiments are not clearly illustrated. 7- The results are not easy to follow. Give more explanation in existing method about result and discussion part. 8- The conclusions in this manuscript are primitive. Write your conclusions. 9- References aren't formatted according to rules. Additional References: The following articles could be useful: • Has the Future Started? The Current Growth of Artificial Intelligence, Machine Learning, and Deep Learning. <https://doi.org/10.52866/ijcsm.2022.01.01.013> • Skin cancer disease images classification using deep learning solutions. <https://doi.org/10.1007/s11042-021-10952-7>

### **Point-by-point response:**

Thank you for your comments and suggestions for our manuscript. We have made some corrections according to your recommendations as follows:

1. The abstract is cumbersome. We have deleted some details in the methods and results.

Besides, we also provided a new section named “ARTICLE HIGHLIGHTS” according to the editorial’s requirements. We believe that this part will give the reviewers and readers

an access to the key point of this study. We have added four key words to make them more detailed.

2. We have described the advantage of this proposed method in the introduction part.
3. We have highlighted the current problems, the gap between the existing research and our model, and the motivation of our conducted study in the introduction part.
4. We agree that there were some omissions that escaped our attention. We have updated the section of contributions and all authors now fulfill all four clauses of the Vancouver requirements.
5. We found that the points focused on this field from the references you recommended were well founded and clear. We included them in our manuscript.
6. We have revised and shortened this section to improve the comprehension.
7. Results section was revised.
8. Thank you for your suggestion. We revised the conclusions. “With the goal of predicting the use of  $\geq 3$  linear stapler cartridges during DST anastomosis in laparoscopic LAR surgery, our pelvic MRI-based deep learning model might be helpful in the preoperative determination of the best anastomosis strategy for mid-low rectal cancer patients, and, in particular, in avoiding the DST technique when there is a high probability of the need for  $\geq 3$  linear stapler cartridges. In this setting, another anastomotic technique without staple line crossing should be chosen. Larger studies are needed to validate its clinical value and determine if this strategy can help lower the AL rate.”
9. We have formatted the references according to the journal’s rules.

Thank you again for your kind and meaningful suggestions and recommendations.