Dear Editor and Reviewers

Thank you for your time in reviewing our manuscript No. 68259, entitled "Artificial Intelligence and Colonoscopy – Enhancements and Improvements" for publication in *Artificial Intelligence in Gastrointestinal Endoscopy*. The following changes have been made according to your suggestions (highlighted in yellow).

Reviewer 1

1. The idea of this paper is very clear and the research direction is very innovative. The author said in the article "Polyps are abnormal tissue growths that arise in the colon that carry malignant potential.Polyps are detected during colonoscopy but can sometimes be missed due to a variety of factors e.g. age of patient, diminutive polyp size, failure to reach cecum, quality of bowel preparation, and experience of endoscopist."Therefore, AI has been applied to intestinal polyps and various intestinal inflammatory diseases. The addition of AI technology will increase the detection rate of intestinal diseases and improve the quality of life of patients.

- Thank you for your positive comments

2. The manuscript was concise and clear, and the style, language and grammar were accurate and appropriate.

- Thank you for your positive comments

3. With the introduction of AI technology mentioned in the article, the rate of diagnosis of diseases by clinicians has been improved, but after all, the sample cases are limited. When this technology is widely applied in clinical practice, can it also achieve such a good effect?

- We appreciate your crucial note. We have added the following comments under the section 'Future Directions'. "The precise effects of AI once it is widely available in clinical practices are yet to be determined, but the evidence based on EndoBRAIN, GI Genius, and WavSTAT4 are hopeful that significant benefits in training gastroenterologist and diagnosing a polyp can be expected."

4. Because endoscopy ignores small polyps, the article mentions that AI technology will increase the detection rate of small polyps and identify the types of polyps. Can it cover all the types of polyps found in the intestine so far? Can AI achieve the goal of treatment in the future?

- Thank you for your crucial note. We have added and edited manuscript in the section 'Future Directions.' "Additional areas of future study include better detection of various polyps (adenomatous, non-adenomatous, dysplastic), evaluation of lesion size and morphology, and distinguishing invasive involvement. Additionally, further study is necessary to evaluate the adequacy of large polyp resection (i.e. margins free of adenomatous change). Much of the early data to date have used AI systems which are based on algorithms using still-images and videos.[58] Larger-scale studies can help us better understand real-time use of AI to show how it compares to endoscopists."

Reviewer 2

1. What is the future of Artificial-intelligence in Gastroenterology and how it can be simplified to be used by most of the Endoscopists/Gastroenterologists ?

- Thank you for your crucial note. We have added "Finally, the future of AI lies in simplifying the tool for utilization by many endoscopists as well as achieving the goal of treatment. One way to overcome the complexity is incorporating the CADS into the colonoscope and display instead of existing as a separate entity that needs to be installed." under the section 'Future Directions.'

2. How CADe system can be upgraded or improved for better sensitivity and specificity ?

- A great note. We have added "Although the current CADS provide promising results, a larger data sets for training the systems can provide improvements in sensitivity and specificity in addition to minimizing false positives and false negatives."

3. How implication of Annotation - Tools in Artificial - Intelligence can be amalgamated to improve specificity rates in Gastroenterology ?

- Thank you for this crucial note. We have added "Although the current CADS provide promising results, a larger data sets for training the systems can provide improvements in sensitivity and specificity in addition to minimizing false positives and false negatives. The larger training data also increases the burden of annotations, however, this can be overcome by an annotation software which incorporates a deep learning module."

4. How false positive and false negative possibly effected low specificity in your review - article.

- Thank you for suggestion. We have added "Although the current CADS provide promising results, a larger data sets for training the systems can provide improvements in sensitivity and specificity in addition to minimizing false positives and false negatives."

We sincerely appreciate your consideration of our manuscript. Should you have any additional questions, please do not hesitate to contact me.

Respectfully,

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