

PEER-REVIEW REPORT

Name of journal: World Journal of Radiology

Manuscript NO: 88654

Title: Methods for improving colorectal cancer annotation efficiency for artificial intelligence-observer training

Provenance and peer review: Unsolicited manuscript; Externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 04700321

Position: Peer Reviewer

Academic degree: PhD

Professional title: Associate Professor, N/A

Reviewer's Country/Territory: China

Author's Country/Territory: United States

Manuscript submission date: 2023-10-03

Reviewer chosen by: AI Technique

Reviewer accepted review: 2023-10-04 00:35

Reviewer performed review: 2023-10-04 01:36

Review time: 1 Hour

	[] Grade A: Excellent [] Grade B: Very good [Y] Grade C:
Scientific quality	Good
	[] Grade D: Fair [] Grade E: Do not publish
Novelty of this manuscript	 [] Grade A: Excellent [Y] Grade B: Good [] Grade C: Fair [] Grade D: No novelty
Creativity or innovation of	[] Grade A: Excellent [Y] Grade B: Good [] Grade C: Fair
this manuscript	[] Grade D: No creativity or innovation

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Scientific significance of the conclusion in this manuscript	[Y] Grade A: Excellent [] Grade B: Good [] Grade C: Fair [] Grade D: No scientific significance
Language quality	[] Grade A: Priority publishing [Y] Grade B: Minor language polishing [] Grade C: A great deal of language polishing [] Grade D: Rejection
Conclusion	[] Accept (High priority) [] Accept (General priority) [Y] Minor revision [] Major revision [] Rejection
Re-review	[Y]Yes []No
Peer-reviewer statements	Peer-Review: [Y] Anonymous [] Onymous Conflicts-of-Interest: [] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

This paper compares two methods, skip-slice annotation and AI-initiated annotation, for reducing the time needed to establish ground truth for supervised training of AI models to detect colorectal cancer. The results show skip-slice annotation, which reduces annotation by up to 2/3, is more effective than AI-initiated annotation for decreasing annotation time without reducing model performance. Overall, the study supports sparse annotation techniques as an efficient approach for training AI cancer detection 1. The introduction would benefit from more background on the specific models. challenges of annotating medical images to motivate the need for efficient annotation techniques. 2. More details are needed on the dataset characteristics - how many cases, size and location distribution of cancers, variability in imaging protocols etc. This is important for assessing generalizability. 3.Explain why 2D U-Net was chosen over other segmentation models. Discussion of limitations of 2D approach is needed. 4. Provide more details on the training methodology - preprocessing techniques, data augmentation, optimization approach, method to choose optimal model etc. 5. Analysis of model performance needs to go beyond sensitivity, false positives and DSC. Precision,



recall, F1 score, IOU etc. should be reported. 6.Ensemble technique requires more explanation - how models were initialized, training details, inference process etc. 7.Statistical tests are needed to support conclusions about annotation time reductions being significant. 8.Limitations of small sample size for time analysis and lack of full DSC quantification should be acknowledged. 9.Significance and practical implications of findings need to be expanded on in the discussion and conclusion.



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Reviewer's code: 05402173

Position: Editorial Board

Academic degree: DPhil, PhD

Professional title: Associate Professor, Professor

Reviewer's Country/Territory: China

Author's Country/Territory: United States

Manuscript submission date: 2023-10-03

Reviewer chosen by: AI Technique

Reviewer accepted review: 2023-10-04 01:31

Reviewer performed review: 2023-10-04 03:39

Review time: 2 Hours

Scientific quality	[] Grade A: Excellent [Y] Grade B: Very good [] Grade C: Good
	[] Grade D: Fair [] Grade E: Do not publish
Novelty of this manuscript	[] Grade A: Excellent[Y] Grade B: Good[] Grade C: Fair[] Grade D: No novelty
Creativity or innovation of this manuscript	 [] Grade A: Excellent [Y] Grade B: Good [] Grade C: Fair [] Grade D: No creativity or innovation



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Peer-reviewer statements	Peer-Review: [Y] Anonymous [] Onymous Conflicts-of-Interest: [] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

This manuscript reports the investigation of using AI technique to assist with radiological diagnosis of CRC. The authors evaluated the efficacy of two different AI approaches and concluded that the sparse annotation technique is efficient for this purpose. This study is current and of important clinical values. However, this reviewer has some minor advices for the authors to consider. 1, Introduction, first and second sentence. On the epidemiology of CRC, a more recent article should be cited: Xie Y, Shi L, He X, Luo Y. Gastrointestinal cancers in China, the USA, and Europe. Gastroenterol Rep (Oxf). 2021 Mar 29;9(2):91-104. doi: 10.1093/gastro/goab010. PMID: 34026216; PMCID: PMC8128023. 2, Introduction, third sentence, on the early screening of CRC, should add a recent research article: Wu Y, Jiao N, Zhu R, Zhang Y, Wu D, Wang AJ, Fang S, Tao L, Li Y, Cheng S, He X, Lan P, Tian C, Liu NN, Zhu L. Identification of microbial markers across populations in early detection of colorectal cancer. Nat Commun. 2021 May 24;12(1):3063. doi: 10.1038/s41467-021-23265-y. PMID: 34031391; PMCID: PMC8144394. 3, Introduction, second paragraph, first sentence. Regarding the application of AI in the early screening of cancer, a more recent article should be cited: Cao R, Tang L, Fang M,



Zhong L, Wang S, Gong L, Li J, Dong D, Tian J. Artificial intelligence in gastric cancer: applications and challenges. Gastroenterol Rep (Oxf). 2022 Nov 29;10:goac064. doi: 10.1093/gastro/goac064. PMID: 36457374; PMCID: PMC9707405.