

## PEER-REVIEW REPORT

**Name of journal:** World Journal of Gastroenterology

**Manuscript NO:** 56193

**Title:** Construction of a convolutional neural network classifier developed by ct images for pancreatic cancer diagnosis

**Reviewer's code:** 03892684

**Position:** Peer Reviewer

**Academic degree:** MD

**Professional title:** Doctor

**Reviewer's Country/Territory:** Italy

**Author's Country/Territory:** China

**Manuscript submission date:** 2020-04-20

**Reviewer chosen by:** AI Technique

**Reviewer accepted review:** 2020-04-20 12:39

**Reviewer performed review:** 2020-04-24 20:04

**Review time:** 4 Days and 7 Hours

<b>Scientific quality</b>	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
<b>Language quality</b>	<input type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input checked="" type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Re-review</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



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## **SPECIFIC COMMENTS TO AUTHORS**

The authors present the application of a simple CNN architecture for diagnostic purposes in pancreatic cancer, for both case/control classification and ternary tumor absence/localization. Dataset size is reasonable, with 15-17 scans per participant. Performances of the CNN are also compared with 10 gastroenterologists and 15 trainees. Very interesting the careful prevention of data leakage by including images of the same patient only in one of train/test/validation sets. The work is interesting, but there are a number of issues that need to be addressed:

- The paper is quite outdated: a large number of studies dealing with using AI on CT scans for pancreatic cancer diagnosis have been published in the literature in the last few years. The authors need to update the reference list, discuss methods and results of the published papers, and compare them with the results reported in the submitted manuscript.
- Further, the authors need to stress the scientific points that mark the difference between the submitted paper from similar studies.
- The proposed architecture is quite basic and simple - much more complex CNNs (and, in general, alternative DL solutions) have appeared, with better outcome: the authors should consider planning some advancements on the proposed solution.
- Overfitting control in training is quite limited: why dropout has not been used?
- Reproducibility is not well supported: resampling the train/validation/test split and averaging (with confidence intervals) over a number of runs would definitely improve the study robustness.
- The achieved results are not impressive, both in absolute terms, in comparison with those reached by the panel of gastroenterologists/trainees and in comparison with those published in other papers (moreover, I would recommend using Matthews Correlation Coefficient as the elective classifier performance metric)
- Many sentences in the paper are written in non-standard English - proofreading by a native English speaker is strongly



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recommended.

## PEER-REVIEW REPORT

**Name of journal:** World Journal of Gastroenterology

**Manuscript NO:** 56193

**Title:** Construction of a convolutional neural network classifier developed by ct images for pancreatic cancer diagnosis

**Reviewer's code:** 02482060

**Position:** Peer Reviewer

**Academic degree:** MD

**Professional title:** Associate Professor

**Reviewer's Country/Territory:** Taiwan

**Author's Country/Territory:** China

**Manuscript submission date:** 2020-04-20

**Reviewer chosen by:** AI Technique

**Reviewer accepted review:** 2020-04-21 06:00

**Reviewer performed review:** 2020-04-26 15:11

**Review time:** 5 Days and 9 Hours

<b>Scientific quality</b>	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input type="checkbox"/> Grade C: Good <input checked="" type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
<b>Language quality</b>	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input checked="" type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Re-review</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

## **SPECIFIC COMMENTS TO AUTHORS**

Title. Okay. Abstract section has provided the results of binary classifier and ternary classifier. However, the conclusion is not related or does not reflect their purpose and results. Keywords. Okay. Background. Okay. Methods. The description in this section is different from the description found in the “abstract”. The authors did not provide the numbers of patients and CT images they used in this study. However, they provided the numbers in the “results” discordant from description in the “abstract”. How many of them disagree to give verbal consent? Did their images obtained after biopsy if they are proven cancer? The authors should tell their readers about the sizes of tumors and the time of CT acquisition (arterial phase and venous phase) after contrast medium administration as well as the total volume of contrast medium and the rate of injection. Results. Under subheading “2”, “, ....CNN model on 1,702, 2,058, and 2,037 test images in..... CNN using 186, 250, and 285 test images in,,,,,”. It may cause confusion because the former images are training images, while latter images are testing images. Because their results demonstrated that plain CT was sufficient for binary classifier, I think they have to provide data regarding the tumor sizes. Discussion. The results regarding plain CT was sufficient for screening and the high diagnostic values of their CT are very interesting. The authors should explain and elaborate it in this section. It is also interesting to know that the sensitivity of pancreatic head/neck cancer is very much higher at arterial phase in their study. Wouldn't the un-opacified SMV at arterial phase cause confusion in detecting pancreatic head/neck tumor? Do they mean that results of artificial intelligence are better than the results as published by other reports? What are the significances of their research? Can we use AI to help us detect and manage pancreatic cancer? Illustration and tables. Figure 1. Normal pancreas tail/body; the venous and arterial phase images are swapped and incorrectly placed. Cancers at

Head/Neck; kidney enhancement pattern does not match a good venous images. If the authors have better images, please replace it. References: Reference #14 and #16 are duplicate. Please correct.

## PEER-REVIEW REPORT

**Name of journal:** World Journal of Gastroenterology

**Manuscript NO:** 56193

**Title:** Construction of a convolutional neural network classifier developed by ct images for pancreatic cancer diagnosis

**Reviewer's code:** 03882290

**Position:** Editorial Board

**Academic degree:** MD, PhD

**Professional title:** Chief Doctor

**Reviewer's Country/Territory:** Japan

**Author's Country/Territory:** China

**Manuscript submission date:** 2020-04-20

**Reviewer chosen by:** AI Technique

**Reviewer accepted review:** 2020-04-21 08:05

**Reviewer performed review:** 2020-04-27 10:15

**Review time:** 6 Days and 2 Hours

<b>Scientific quality</b>	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
<b>Language quality</b>	<input type="checkbox"/> Grade A: Priority publishing <input checked="" type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input type="checkbox"/> Accept (General priority) <input checked="" type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Re-review</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



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#### **SPECIFIC COMMENTS TO AUTHORS**

Authors developed CNN which detects pancreatic cancer. It is important and interesting, but there are several concerns to be raised. 1. Not only verbal informed consent, but explanation by literature is desired, like opt-out method. 2. As authors describe in the limitation part, only pancreatic cancer and normal pancreas were included. What about other tumors like IPMN?

## RE-REVIEW REPORT OF REVISED MANUSCRIPT

**Name of journal:** World Journal of Gastroenterology

**Manuscript NO:** 56193

**Title:** Construction of a convolutional neural network classifier developed by ct images for pancreatic cancer diagnosis

**Reviewer's code:** 03892684

**Position:** Peer Reviewer

**Academic degree:** MD

**Professional title:** Doctor

**Reviewer's Country/Territory:** Italy

**Author's Country/Territory:** China

**Manuscript submission date:** 2020-04-20

**Reviewer chosen by:** Ji-Hong Liu (Technical Editor)

**Reviewer accepted review:** 2020-07-07 06:23

**Reviewer performed review:** 2020-07-07 06:37

**Review time:** 1 Hour

<b>Scientific quality</b>	<input type="checkbox"/> Grade A: Excellent <input type="checkbox"/> Grade B: Very good <input checked="" type="checkbox"/> Grade C: Good <input type="checkbox"/> Grade D: Fair <input type="checkbox"/> Grade E: Do not publish
<b>Language quality</b>	<input checked="" type="checkbox"/> Grade A: Priority publishing <input type="checkbox"/> Grade B: Minor language polishing <input type="checkbox"/> Grade C: A great deal of language polishing <input type="checkbox"/> Grade D: Rejection
<b>Conclusion</b>	<input type="checkbox"/> Accept (High priority) <input checked="" type="checkbox"/> Accept (General priority) <input type="checkbox"/> Minor revision <input type="checkbox"/> Major revision <input type="checkbox"/> Rejection
<b>Peer-reviewer statements</b>	Peer-Review: <input checked="" type="checkbox"/> Anonymous <input type="checkbox"/> Onymous Conflicts-of-Interest: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

## SPECIFIC COMMENTS TO AUTHORS



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All the raised issues have been reasonably met.