Response to reviewers' comments

Reviewer 1.

Comment

This study investigated the AI techniques (including ML and DL) used in liver imaging applications. The contents include both technical and clinical aspects, which is of wide interests. Some of my comments are listed below:

Our response

We are pleased that the reviewer finds our paper to be of wide interest. We thank them for their recommendations which we have addressed as detailed below. We believe that this has improved our paper significantly.

Comment

1. The background should be more focusing on liver disease. Since there is plenty of papers relating to liver AI, I don't think it is necessary to include papers for brain, cardiac or breast imaging. The same problem need to be solved throughout the paper.

Our response

We thank the reviewer for this comment. However, we think that the references to the application of AI in other body systems exemplifies how AI can improve diagnosis of disease. In particular, the study examining application of AI in breast cancer screening is striking because AI outperformed human reading of mammograms. Nothing as significant has been reported with regards to liver imaging, and by including the reference to the breast screening study (and the studies on brain ad cardiac imaging) we wanted to highlight that application of AI in liver imaging has a lot of potential that has not yet been fully exploited.

Comment

2. Some important citations are missing in the ARTIFICIAL INTELLIGENCE ALGORITHMS section. The descriptions of some notations are too technical and tedious. I suggest to make the descriptions more clinical/disease related.

Our response

We have added references for the Supported Vector Machine and random forest algorithms (Ref 23 and 24 in the revised manuscript). We have also revised the Artificial Intelligence Algorithms section to make it more clinical / disease related. Furthermore, we have revised the introduction to each section of the paper to make it more clinically relevant.

Comment

3. The technical part is too basic for most of the researchers. It will be more interesting if the authors can discuss or comment on the differences of papers about similar works.

Our response

We have restructured the paper by moving some sections to make the flow of text easier to follow. We also now include some comparisons between studies and comment on the differences of similar works.

Comment

4. AI based Registrations should also be reviewed.

Our response

We have now added a section on image registration.

Reviewer 2.

Comment

This is a rather well-presented study. In the inspection made according to the Criteria Checklist; the presentation is overall clear and has no major mistake. The article explains in detail the developments in artificial intelligence in magnetic resonance imaging of the liver under different topics. In addition, there are detailed descriptions of current challenges and future directions under three topic title. Conclusion Good References good Tables good Figures Ok

Our response

We thank the reviewer for the careful consideration of our study and welcome their positive feedback.

Science editor

Comment

(1) The "Author Contributions" section is missing. Please provide the author contributions;

Our response

The "Authors Contributions" section has been added to the title page of our manuscript.

Comment

(2) The authors did not provide the approved grant application form(s). Please upload the approved grant application form(s) or funding agency copy of any approval document(s);

Our response

We have uploaded the acceptance letter for Charles Hill to the doctoral training programme supported by grant EP/L016052/1. Details of the grant can also be found online at https://gow.epsrc.ukri.org/NGBOViewGrant.aspx?GrantRef=EP/L016052/1 and https://gtr.ukri.org/project/DBB8998C-E544-4524-9711-FE4297E9A85D.

Comment

(3) The authors did not provide original pictures. Please provide the original figure documents. Please prepare and arrange the figures using PowerPoint to ensure that all graphs or arrows or text portions can be reprocessed by the editor.

Our response

The figures have been prepared using PowerPoint and have been separately uploaded.

Comment

(4) If an author of a submission is re-using a figure or figures published elsewhere, or that is copyrighted, the author must provide documentation that the previous publisher or copyright holder has given permission for the figure to be re-published; and correctly indicating the reference source and copyrights. For example, "Figure 1 Histopathological examination by hematoxylin-eosin staining (200 ×). A: Control group; B: Model group; C: Pioglitazone hydrochloride group; D: Chinese herbal medicine group. Citation: Yang JM, Sun Y, Wang M, Zhang XL, Zhang SJ, Gao YS, Chen L, Wu MY, Zhou L, Zhou YM, Wang Y, Zheng FJ, Li YH. Regulatory effect of a Chinese herbal medicine formula on non-alcoholic fatty liver disease. World J Gastroenterol 2019; 25(34): 5105-5119. Copyright ©The Author(s) 2019. Published by Baishideng Publishing Group Inc[6]". And please cite the reference source in the references list. If the author fails to properly cite the published or copyrighted picture(s) or table(s) as described above, he/she will be subject to withdrawal of the article from BPG publications and may even be held liable.

Our response

We have prepared our own figures for this manuscript and we are not using figures that were published elsewhere.