PEER-REVIEW REPORT

Name of journal: Artificial Intelligence in Medical Imaging

Manuscript NO: 57370

Title: Development of tomographic reconstruction for 3D optical imaging: from the inversion of light propagation to artificial intelligence

Reviewer's code: 01898555

Position: Editorial Board

Academic degree: MD, MSc, PhD

Professional title: Professor

Reviewer's Country/Territory: United States

Author's Country/Territory: China

Manuscript submission date: 2020-06-05

Reviewer chosen by: Jin-Lei Wang

Reviewer accepted review: 2020-06-29 11:30

Reviewer performed review: 2020-06-29 18:16

Review time: 6 Hours

Scientific quality	[Y] Grade A: Excellent [ ] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
Language quality	[Y] Grade A: Priority publishing [ ] 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 is a generally well-written review on machine learning and OMT. The topic is of very high interest. It can be an advanced method for in vivo tissue imaging and potentially can change biological and medical sciences. This paper can be improved in following points.   There are many environmental, dietary, and other factors that influence the microbiome, immune system, and pathogenic mechanisms. The authors should discuss molecular changes induced by these factors that can be detected by OMT. In these contexts, as a future direction, research on dietary / lifestyle factors, microbiome, immunity, and molecular tissue biomarkers is needed. The authors should discuss molecular pathological epidemiology (MPE), which can pathologically, epidemiologically investigate those factors in relation to molecular pathologies, immunity, and clinical outcomes. MPE's strengths and challenges have been discussed in Gut 2018, Annu Rev Pathol 2019, etc. I believe MPE research can be a promising direction and OMT can make a big role.

PEER-REVIEW REPORT

Name of journal: Artificial Intelligence in Medical Imaging

Manuscript NO: 57370

Title: Development of tomographic reconstruction for 3D optical imaging: from the inversion of light propagation to artificial intelligence

Reviewer's code: 04279936

Position: Associate Editor

Academic degree: PhD

Professional title: Academic Research, Professor

Reviewer's Country/Territory: France

Author's Country/Territory: China

Manuscript submission date: 2020-06-05

Reviewer chosen by: Jin-Lei Wang

Reviewer accepted review: 2020-06-29 17:25

Reviewer performed review: 2020-07-01 07:02

Review time: 1 Day and 13 Hours

Scientific quality	[ ] Grade A: Excellent [Y] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
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

1. 2. 3. The Title, Abstract and Key words, cover the main aspects of the work, it spark interest to the right audience in this domain   4. Background: The given background in the Introduction easy to follow. It cite the recent appropriate papers. It provide a hypothesis or aim of the study well located in relation to the state of the art of existing works   5 Methods. Does the manuscript describe methods (e.g., experiments, data analysis, surveys, and clinical trials, etc.) in adequate detail?   The methods section does not provide enough detail; so that the approach used is clear to readers, the authors are invited to provide more details on the elements used in the image analysis and reconstruction algorithm. They do not give enough information on the effects of tissue interfaces on the waves or on the tarnsfert matrix used (if applicable) in order to define the parameters of the optical wave solicited in each layer.   6. 7. Results and Discussion: Effectively, the authors discuss a flexible approach giving a 3D optical image in depth with an optimized calculation time (real time). The Discussion address the main findings, and give proper recognition and a real contribution to similar work in this field   8 Illustrations and tables.   The Results refer to the figures in a logical order. On the other hand, Figures 3 and 4 have to be redone with an overall revision of the legends and scales   9 Biostatistics. Does the manuscript meet the requirements of biostatistics? Not applicable   10 Units. Does the manuscript meet the requirements of use of SI units? Seriously missing in the text and on the axes of the images (figures 2 & 3 for example)   11 References. Does the manuscript cite appropriately the latest, important and authoritative references in the introduction and discussion sections? Does the author self-cite, omit, incorrectly cite and/or over-cite references? Yes.   In genetral, the authors discuss in this paper an imaging modality based on the optical molecular tomography (OMT) in   the near-infrared light, to reconstruct the

three-dimensional information in biological tissue. However, I invite the authors to take note of the remarks expressed above in order to improve the overall content of the article and which in no way affects the quality of this work.

RE-REVIEW REPORT OF REVISED MANUSCRIPT

Name of journal: Artificial Intelligence in Medical Imaging

Manuscript NO: 57370

Title: Development of tomographic reconstruction for 3D optical imaging: from the inversion of light propagation to artificial intelligence

Reviewer's code: 01898555

Position: Editorial Board

Academic degree: MD, MSc, PhD

Professional title: Professor

Reviewer's Country/Territory: United States

Author's Country/Territory: China

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Reviewer chosen by: Jin-Lei Wang

Reviewer accepted review: 2020-08-06 17:41

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Review time: 2 Hours

Scientific quality	[Y] Grade A: Excellent [ ] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish
Language quality	[Y] Grade A: Priority publishing [ ] Grade B: Minor language polishing [ ] Grade C: A great deal of language polishing [ ] Grade D: Rejection
Conclusion	[Y] Accept (High priority) [ ] Accept (General priority) [ ] Minor revision [ ] Major revision [ ] Rejection
Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

The authors improved the paper