PEER-REVIEW REPORT

Name of journal: *Artificial Intelligence in Medical Imaging*

Manuscript NO: 75227

Title: 02edEnhancing Medical-Imaging Artificial Intelligence through Holistic Use of Time-Tested Key Imaging and Clinical Parameters: Future Insights 68

Provenance and peer review: Invited manuscript; externally peer reviewed

Peer-review model: Single blind

Reviewer's code: 05589261

Position: Peer Reviewer

Academic degree: PhD

Professional title: Research Associate

Reviewer's Country/Territory: United States

Author's Country/Territory: India

Manuscript submission date: 2022-01-19

Reviewer chosen by: AI Technique

Reviewer accepted review: 2022-02-02 18:52

Reviewer performed review: 2022-02-04 00:27

Review time: 1 Day and 5 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Scientific quality	[ ] Grade A: Excellent [Y] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish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) [Y] Accept (General priority) [ ] Minor revision [ ] Major revision [ ] Rejection
Re-review	[ ] Yes [Y] No

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

SPECIFIC COMMENTS TO AUTHORS

The mini-review manuscript is very well written and meet all the criteria checklist for publication in this journal. Only few minor modifications are needed: 1. On page1, Abstract, define DL. 2. In Introduction section, part 1a, give reference for BRS 3. Properly format "Justify" the text of the manuscript.   All the best!

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	Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

In this manuscript, Enhancing Medical-Imaging Artificial-Intelligence (MIAI) through Holistic use of time-tested key imaging and clinical parameters & MIAI Future Insights has been addressed in a mini-review form. The following topics have been highlighted as the contribution of this manuscript: Understanding the basics of how different AI techniques work is crucial in order to comprehend their respective strengths and limitations. While improvements in DNN research in Radiology are noteworthy, the focus should shift away from apps that do a single recognition job and toward systems that conduct realistic multi-recognition tasks that radiologists perform on a regular basis. Humans employ a variety of problem-solving techniques, switching between them as needed. Similarly, practical AI solutions must incorporate a variety of methodologies. Excellent radiologists are also excellent physicians. In the same way, AI must be able to use all available evidence, not just imaging data, and not just one/limited element of imaging. Both Humans and computer algorithms are both susceptible to bias. Better explainability - the ability to properly convey how things function – is one method to decrease bias and prevent failure. Although the idea of this research is timely regarding the present situation, the literature review needs to be improved significantly. Nevertheless, there are some major issues that need to be addressed as follows: 1.In order to help readers understand the methods verified in this research, it is necessary to add some tables, charts, and graphical works, showing the understudied papers. 2.The contribution of the paper is ambiguous. The authors need to explain how this research can be used for developing AI in cardiac telerehabilitation. 3. Reliability, accuracy, and features of each method or group of methodologies need to be discussed

comprehensively. Moreover, the effectiveness of these studies should be explained. 4. Author should show the differences and similarities of the current review with other ones with a focus on strengths and weaknesses. 5. Future work should be extended about each group of the understudied method. 6. The literature review is too poor. It is highly recommended to improve it. In this respect, the applications of AI in different fields of study, such as engineering, economy, and medicine need to be explained via the following references in each section. This can enhance the presentation in a good way: 1.1. Neural Networks (NNs): Deep Learning a. Artificial Intelligence and COVID-19: Deep Learning Approaches for Diagnosis and Treatment DOI: 10.1109/ACCESS.2020.3001973 b. Deep Learning Techniques and COVID-19 Drug Discovery: Fundamentals, State-of-the-Art and Future DirectionsDOI: 10.1007/978-3-030-67716-9_2 c. A Conceptual Deep Learning Framework for COVID-19 Drug Discovery DOI: 10.1109/UEMCON53757.2021.9666715 d. Deep Learning Techniques for Model Reference Adaptive Control and Identification of Complex Systems DOI: 10.1109/ME49197.2020.9286698 1.2. Training in Machine Learning: a. Hybrid Machine Learning Techniques and Computational Mechanics: Estimating the Dynamic Behavior of Oxide Precipitation Hardened Steel DOI: 10.1109/ACCESS.2021.3129454 b.Using an ANN Approach to Estimate Output Power and PAE of A Modified Class-F Power Amplifier DOI: 10.23919/AE49394.2020.9232787 c. A novel neural-based approach for design of microstrip filters, DOI: 10.1016/j.aeue.2019.152847 d. Design and modeling of a compact power divider with squared resonators using artificial intelligence DOI: 10.1007/s11277-020-07960-5 e. Neuro-Fuzzy Approaches to Estimating Thermal Overstress Behavior of IGBTs, DOI: 10.1109/PEMC48073.2021.9432584 f. An ANFIS Approach to Modeling a Small Satellite Power Source of NASA, DOI: 10.1109/ICNSC.2019.8743333 7. Trustworthy of AI in medical applications should be discussed 8. Title is not correct and it needs to change

from "AI mini-review – Enhancing Medical-Imaging Artificial-Intelligence (MIAI) through Holistic use of time-tested key imaging and clinical parameters & MIAI Future Insights" to "Artificial Intelligence Medical Imaging Empowered by time-tested key imaging and clinical parameters" 9. Abstract should be clearly rewritten.

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

SPECIFIC COMMENTS TO AUTHORS

Nadkarni et al. reviewed the current status and future prospects in medical imaging artificial intelligence (MIAI). Overall, the authors well reviewed machine learning method and clinical application. My evaluation is that the paper is publishable with minor revisions.   Major points; 1）Introduction there is discrepancy seen in the abstract and core tip. In the abstract, there is a sentence stating that the AI applications to be trusted to be bias-free. However, the authors stated that AI algorithm can be biased in the core tip. Please reconsider this text. 2) Although the manuscript is well written about the analytic methods for medical imaging in AI, the disadvantages of the machine learning/deep-learning and the strategy to overcome these problems also should be described. Please refer the following articles. 1) The "Black-box" prediction (Loyola-Gonzalez et al. IEEE access. 2019 7: 154096-154113) ① AI early warning score (xAIEWS) system (Lauritsen et al. Nat Commun. 2020 Jul 31;11(1):3852). ② Double-descent (Nakkarian et al. ICLR 2020; Nakkarian et al. arXiv. 2019: 1912.02292) ③ Dropout/Batch normalization (Li et al. Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV). 2019: 3978-3987) ④ Explainable AI/Interpretable AI (Lauritsen et al. Nat Commun. 2020 Jul 31;11(1):3852). 2) Domain shift ① Domain adaptation (Choudhary et al. Yearb Med Inform. 2020 Aug;29(1):129-138.) 3) Clinical application (Guidelines and legislation) ① Good machine learning practices (Artificial Intelligence/Machine Learning (AI/ML)-Based Software as a Medical Device (SaMD) Action Plan. 2021 Jan; U.S Food and Drug Administration) ② Algorithm change protocol (Artificial Intelligence/Machine Learning (AI/ML)-Based

Software as a Medical Device (SaMD) Action Plan. 2021 Jan; U.S Food and Drug Administration) ③ General Data Protection Regulation (Artificial Intelligence/Machine Learning (AI/ML)-Based Software as a Medical Device (SaMD) Action Plan. 2021 Jan; U.S Food and Drug Administration) ④ Proposal for a Regulation laying down harmonised rules on artificial intelligence (Proposal for a Regulation laying down harmonised rules on artificial intelligence. 2021; European commission)   Minor points 1) Page 5; the title of "Statistical supervised learning techniques" should be underlined.