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PEER-REVIEW REPORT

Name of journal: Artificial Intelligence in Medical Imaging

Manuscript NO: 58628

Title: Predicting a Live Birth by Artificial Intelligence Incorporating Both the Blastocyst Image and Conventional Embryo Evaluation Parameters

Reviewer's code: 03764404
Position: Editorial Board
Academic degree: MD, PhD

Professional title: Chairman, Professor

Reviewer's Country/Territory: Russia

Author's Country/Territory: Japan

Manuscript submission date: 2020-08-24

Reviewer chosen by: Jin-Lei Wang

Reviewer accepted review: 2020-08-24 16:20

Reviewer performed review: 2020-08-25 11:29

Review time: 19 Hours

Scientific quality	[ ] Grade A: Excellent [Y] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish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) [Y] Accept (General priority) [ ] Minor revision [ ] Major revision [ ] Rejection
Re-review	[Y] Yes [ ] No
Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous Conflicts-of-Interest: [ ] Yes [Y] No

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SPECIFIC COMMENTS TO AUTHORS

1 Title. Does the title reflect the main subject/hypothesis of the manuscript? yes 2 Abstract. Does the abstract summarize and reflect the work described in the manuscript? yes 3 Key words. Do the key words reflect the focus of the manuscript? yes 4 Background. Does the manuscript adequately describe the background, present status and significance of the study? yes 5 Methods. Does the manuscript describe methods (e.g., experiments, data analysis, surveys, and clinical trials, etc.) in adequate detail? yes 6 Results. Are the research objectives achieved by the experiments used in this study? What are the contributions that the study has made for research progress in this field? yes/ this is the first result in this area 7 Discussion. Does the manuscript interpret the findings adequately and appropriately, highlighting the key points concisely, clearly and logically? Are the findings and their applicability/relevance to the literature stated in a clear and definite manner? Is the discussion accurate and does it discuss the paper's scientific significance and/or relevance to clinical practice sufficiently? yes 8 Illustrations and tables. Are the figures, diagrams and tables sufficient, good quality and appropriately illustrative of the paper contents? Do figures require labeling with arrows, asterisks etc., better legends?yes\no 9 Biostatistics. Does the manuscript meet the requirements of biostatistics? yes 10 Units. Does the manuscript meet the requirements of use of SI units? yes 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\yes-self-cite\no 12 Quality of manuscript organization and presentation. Is the manuscript well, concisely and coherently organized and presented? Is the style, language and grammar accurate and appropriate? yes\yes 13 Research methods and reporting. Authors should have prepared their manuscripts according to manuscript

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type and the appropriate categories, as follows: (1) CARE Checklist (2013) - Case report; (2) CONSORT 2010 Statement - Clinical Trials study, Prospective study, Randomized Controlled trial, Randomized Clinical trial; (3) PRISMA 2009 Checklist - Evidence-Based Medicine, Systematic review, Meta-Analysis; (4) STROBE Statement - Case Control study, Observational study, Retrospective Cohort study; and (5) The ARRIVE Guidelines - Basic study. Did the author prepare the manuscript according to the appropriate research methods and reporting? yes-basic study 14 Ethics statements. For all manuscripts involving human studies and/or animal experiments, author(s) must submit the related formal ethics documents that were reviewed and approved by their local ethical review committee. Did the manuscript meet the requirements of ethics?

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PEER-REVIEW REPORT

Name of journal: Artificial Intelligence in Medical Imaging

Manuscript NO: 58628

Title: Predicting a Live Birth by Artificial Intelligence Incorporating Both the Blastocyst Image and Conventional Embryo Evaluation Parameters

Reviewer's code: 03363444
Position: Editorial Board
Academic degree: MD

Professional title: Professor

Reviewer's Country/Territory: China

Author's Country/Territory: Japan

Manuscript submission date: 2020-08-24

Reviewer chosen by: Jin-Lei Wang

Reviewer accepted review: 2020-08-25 08:34

Reviewer performed review: 2020-08-25 13:02

Review time: 4 Hours

Scientific quality	[ ] Grade A: Excellent [Y] 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
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Peer-reviewer statements	Peer-Review: [Y] Anonymous [ ] Onymous Conflicts-of-Interest: [ ] Yes [Y] No

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SPECIFIC COMMENTS TO AUTHORS

1.Please supply the techinical detail of the routine conventional microscopic observation, such as the magnification ratio , the standard of the blastocyst "large enough" 2. Given the data were obtained from sigle institution, did the author test the generalization ability of the predition formula using external data?

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PEER-REVIEW REPORT

Name of journal: Artificial Intelligence in Medical Imaging

Manuscript NO: 58628

Title: Predicting a Live Birth by Artificial Intelligence Incorporating Both the Blastocyst Image and Conventional Embryo Evaluation Parameters

Reviewer's code: 05081094
Position: Peer Reviewer
Academic degree: MD

Professional title: Doctor

Reviewer's Country/Territory: United Kingdom

Author's Country/Territory: Japan

Manuscript submission date: 2020-08-24

Reviewer chosen by: AI Technique

Reviewer accepted review: 2020-08-24 09:55

Reviewer performed review: 2020-09-01 14:32

Review time: 8 Days and 4 Hours

Scientific quality	[ ] Grade A: Excellent [Y] 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) [Y] Accept (General priority) [ ] Minor revision [ ] Major revision [ ] Rejection
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SPECIFIC COMMENTS TO AUTHORS

Dear Authors, Thank you for this piece of work. Clearly it is very interesting and potentially helpful. I have only a few points to query. 1) The datasets used to train and validate the machine learning algorithm seems to work better in certain age groups compared to others. Is there any reason for selecting the said age groups? Eg, what was the reason for the age cut offs selected? Is it a biological factor or simply a historical dataset? Do you have the dataset raw numbers in terms of patients numbers? 2) This algorith has been trained and validated on a certain patient cohort (Asian/Japanese/ certain treatment pathways such as only implanting 1 blastocyt per attempt etc). Would the team be willing to share/release the anonymised datasets for others to attempt to reproduce or validate it with other datasets (other regions, different treatment practices). Otherwise, the data and this research is very interesting. The issue is will the algorithm be used to select blastocytes for implantation in future (this could lead to other ethical implications which the authors have not addressed - is this ethical to be used clinically, is it even accurate enough to be used ?) Thank you