

## Reviewer Report

**Title: NuCLS: A scalable crowdsourcing approach & dataset for nucleus classification and segmentation in breast cancer**

**Version: Original Submission**    **Date: 11/21/2021**

**Reviewer name: Monjoy Saha, PhD**

### Reviewer Comments to Author:

The manuscript is about breast cancer nucleus classification and segmentation. The goal itself is intriguing. This domain has a large number of articles. The authors should modify the title of this manuscript and it should be aligned with the main objectives. I have the following queries:

"This paper presents data and analysis results for single and multi-rater annotations from both non-experts and pathologists. We present a novel method for suggesting annotations that allows us to collect accurate segmentation data without the need for laborious manual tracing of cells"- How the nucleus detection and classification method is different than the existing semi/fully automated methods? A comparative analysis with the existing approaches will be beneficial.

"Our results indicate that even noisy algorithmic suggestions do not adversely affect pathologist accuracy, and can help non-experts improve annotation quality"- How the non-experts will use this tool? Are there any software packages/web tool is available for non-experts? If yes, the authors should share the details for review, and if not, the authors should work on the development of that web tool/software GUI. If it is associated with HistomicsUI/HistomicsTK share details for review. It will be interesting to check how the tool works on WSIs.

Mask R-CNN has been used in various articles for nucleus detection/segmentation/classification. What are the technical novelties of the proposed approach?

It will be better if the authors focus more on the novel technical contributions and statistical analysis part. Qualitative results need to be improved. Instead of bounding boxes, the authors should use the actual contour of cells/nuclei.

S10. Algorithm-The algorithm needs to be improved. It will be better if the authors share their source codes, trained model, and test data for review and reproduce the result of figure 4a on a whole slide image.

### Methods

Are the methods appropriate to the aims of the study, are they well described, and are necessary controls included? Choose an item.

### Conclusions

Are the conclusions adequately supported by the data shown? Choose an item.

## Reporting Standards

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Are you able to assess all statistics in the manuscript, including the appropriateness of statistical tests used? Choose an item.

## Quality of Written English

Please indicate the quality of language in the manuscript: Choose an item.

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