Physics and Imaging in Radiation Oncology

Dear Editor,

We are writing to submit our manuscript, “Prediction of Local Control for Colorectal Liver Metastases using a Radiomic Artificial Intelligence Model” for consideration as a full research article to Physics and Imaging in Radiation Oncology. Our work presents a novel engineering algorithm in CT scans for predict analysis and we disclose that we are submitted after advice to transfer from Radiotherapy and Oncology that a image analysis journal is more appropriate.

The motivation for this work is the importance of prognostic assessment of colorectal liver metastases patients and the current limitations in accuracy for existing prognostic scoring methods. We aimed to address these limitations by leveraging two advances in computer aided analysis: namely the usage details within CT liver scans that may be difficult to manually quantify and the usage of modern artificial intelligence predictive analysis.

To accomplish this, we report on the development of a multi-stage algorithm to that automatically analyzes quantitative features withing a liver scan and utilize artificial intelligence random forest algorithms to predict time to recurrence. We share our validation results, with promising prediction accuracies and we also share limitations that may be addressed in future work. The total word count of the manuscript, excluding tables, figures, and captions is 2915 words.

Our intended audience is congruent with Physics and Imaging in Radiation Oncology

as we aim to reach viewership that includes innovative clinicians and engineers at the forefront of developing new technology to assess metastatic lesions in imaging. We hope that sharing our work will lead to productive feedback and collaboration from the scientific community to further develop novel assessment methods in radiation oncology.

Thank you for your consideration,

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