April 1, 2019

Dear Dr. Steinley,

I am writing to submit our manuscript entitled, “ROC and AUC with a Binary Predictor: a Potentially Misleading Metric” for consideration as a Journal of Classification research article. The paper demonstrates issues with current implementations of ROC curves and area under the curve (AUC) estimates for binary predictors, using R, Python, Stata, and SAS software. Mainly, the AUC estimates are highly determined by how ties are accounted. We reference examples of when these methods are employed.

Given that ROC analysis is widely used, we believe that the findings presented in our paper will appeal to those doing classification analyses and AUC as a metric. Our paper will allow researchers reference limitations with ROC analysis, as well as provide a place for simple code for collaborators who want to perform this analysis.

Each of the authors confirms that this manuscript has not been previously published and is not currently under consideration by any other journal. Additionally, all of the authors have approved the contents of this paper and have agreed to the Journal of Classification’s submission policies.

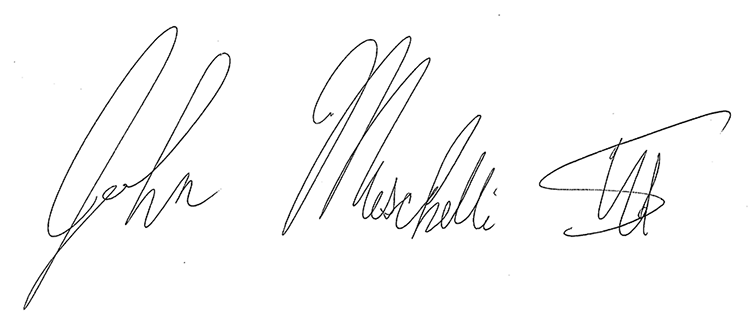
Should you select our manuscript for peer review, we would like to suggest the following potential reviewers/referees because they would have the requisite background to evaluate our findings and interpretation objectively

* Tom Fawcett, Data Scientists LLC, [tom.fawcett@gmail.com](mailto:tom.fawcett@gmail.com), An introduction to ROC analysis
* Erik Peter, Parexel, jerikpeter@gmail.com, author of the fbroc package
* Tobias Sing, Novartis, [tobias.sing@gmail.com](mailto:tobias.sing@gmail.com) , maintainer of the ROCR package

To the best of our knowledge, none of the above-suggested persons have any conflict of interest, financial or otherwise.

Each named author has substantially contributed to conducting the underlying research and drafting this manuscript. Additionally, to the best of our knowledge, the named authors have no conflict of interest, financial or otherwise.

Sincerely,



John Muschelli, PhD

Assistant Scientist

Department of Biostatistics

Johns Hopkins Bloomberg School of Public Health

[muschellij2@gmail.com](mailto:muschellij2@gmail.com)

6102917685