Dear Editor,

We are pleased to submit to *Entropy* our manuscript entitled "The Structure of Chaos: An Empirical Comparison of Fractal Physiology Complexity Indices using NeuroKit2".

The concepts and methods of complexity science have been increasingly gaining traction in fields such as psychophysiology and many new measures of entropy or fractal dimension have recently emerged from computational and mathematical advances. However, few studies have attempted to objectively compare the relationship and performance of the plethora of metrics available. In this paper, we systematically compared 125 complexity indices by their computational weight, their representativeness of a multidimensional space of latent dimensions and their empirical proximity with other indices. We also underline how a selection of 12 indices might be complimentary for the quantification of the complexity of a time series.

We believe this work to be especially well suited for publication in *Entropy* and highly relevant to a broader scientific readership because it not only provides novel insight into the methods of the growing field of complexity science, but also serves as a complexity indices selection guide for researchers, in turn increasing the accessibility and informed usage of such methods. Moreover, the primarily visual nature of the results (conveyed primarily through the different figures) makes it an engaging piece for a large audience. We also expect this study to spur interesting discussions and follow-up studies in the community, in particular related to the validation and meaning-clarification of various clusters of indices.

In line with our lab's aim to set the highest standards of methodological rigour and reproducibility, the data and the full analysis script (including the code to generate the figures) has been made publicly available at
https://github.com/neuropsychology/NeuroKit/tree/master/studies/complexity_structure.

This manuscript is original, not previously published, and not under concurrent consideration elsewhere and the data were collected in a manner consistent with ethical standards for the treatment of human subjects. There is no conflict of interest to disclose. All authors have approved the manuscript and agree with its submission to *Entropy*.

We hope you will find our manuscript interesting and suitable for publication in your journal.

On behalf of all the authors,

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