Bordeaux, November 18, 2020

Dear editor,

We would like to submit to *Neural Computation* an original work entitled "**Randomized Self-Organizing map** ". This paper introduces a variation of the self-organizing map algorithm by considering the random placement of neurons on a two-dimensional manifold, following a blue noise distribution from which various topologies can be derived. These topologies possess discontinuities that allow for a more flexible self-organization, especially with high-dimensional data.

We performed a thorough analysis of this model whose performances are comparable to the original implementation of Teuvo Kohonen. This is a bit disappointing since we were expecting much better performances due to the discontinuities in the neural map. However, we think the model remains interesting for the community since it relies on much weaker hypotheses (than the original SOM) and it is able to gracefully reorganize itself when units are added or removed during learning.

None of the material has been published or is under consideration for publication elsewhere (but arXiv preprint). All the authors have been involved with the work and have approved the manuscript and agree to its submission

Sincerely,
On behalf of the authors, Nicolas P. Rougier

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