Dear Editor,

We would like to submit our manuscript entitled *“A Study of Deep Clustering in Spike Sorting”* for consideration for publication in *Neuroinformatics*.

In this work, we conduct a comprehensive evaluation of 12 deep clustering algorithms in the context of spike sorting, comparing them against traditional feature extraction methods combined with clustering algorithms across 95 synthetic and 2 real neural datasets. Our findings demonstrate that a subset of deep clustering methods—particularly DDC, DEC, IDEC, and VaDE—outperform traditional methods, especially as dataset complexity increases. These methods integrate feature extraction and clustering into a unified optimization process, offering significant advantages for the analysis of complex extracellular recordings.

We believe our study aligns well with the aims and scope of *Neuroinformatics*, especially in its focus on computational advances that enhance the processing and interpretation of neural data. This manuscript contributes both practical insights and methodological guidance for the application of deep learning techniques to large-scale neural data analysis.

The manuscript is original, has not been published, and is not under consideration elsewhere. All authors have approved the manuscript and agree with its submission to *Neuroinformatics*. The data and code used in this study are publicly available to promote transparency and reproducibility.

We appreciate your time and consideration and look forward to the opportunity to contribute to your journal.

Sincerely,  
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