



IMPROVING THE INITIALISATION AND RELIABILITY OF THE SELF ORGANISING OSCILLATOR NETWORK (MonPmPO2)

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★ Abstract :

The Self-Organizing Oscillator Network (SOON) provides a novel way for data clustering [1,2]. The SOON is a distance based algorithm, meaning that clusters are determined by a distance parameter, rather than by density distribution, or a predefined number of clusters. Repeated experiments have highlighted the sensitivity of this algorithm to the initial selection of phase values and prototypes. In repeated experiments, the SOON as proposed by Frigui is shown to have a number of shortfalls in terms of its performance over repeated clustering runs. This paper proposes improvements to the initialization stage of the algorithm by comparing the difference between random initialization of the phase curve and initialization using the ordering obtained from a hierarchical clustering approach. This leads to improved convergence of the algorithm and more robust repeatability. When compared against random generation of phases and prototypes as published by Frigui originally, the changes in initialization are shown to give significant improvements in the performance of the algorithm.